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THE UNIVERSITY OF ALBERTA

CHILDREN'S HUMOR PREFERENCES

by

RODNEY H. A. FAY

A THESIS

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled, "Children's Humor Preferences," submitted by Rodney H.A. Fay in partial fulfilment of the requirements for the degree of Master of Education.

ABSTRACT

This study of children's humor preferences in grades 4, 5 and 6, had three main purposes. These were the devising of an humor instrument appropriate to the investigation, the examination of the subjects' responses to tendentious and innocent humor, and the discovery of the influence of other stated variables on humor responses.

The sample for the investigation consisted of 57 students from the upper elementary grades of two schools in Grande Prairie, Alberta. Subjects' Scores on the humor instrument, devised by the investigator, were analysed in conjunction with other scores obtained by the administration of tests to assess competencies in language, cognitive operations, and reading.

The data obtained in the investigation were subjected to factor analysis, and the Varimax rotation using orthogonal axes revealed six principal factors operating within the tests administered. From these six factors, which accounted for a total of 76.050% of the total variance in the data, Factor I emerged as a mastery factor. However, conclusive evidence of interrelationships between the humor scores and those yielded by competency measures was not found. The study revealed that these competency measures were of too narrow a specificity to show interrelationships with the humor scores, and evidence is presented to substantiate this. Inspection of the factor loading matrix resulting from the Varimax rotation revealed that the sex of the individual played some part in influencing his or her humor responses.

This investigation resulted in the identification of avenues for future research. It showed that further study would be of interest,

and would have relevance to the teacher concerned with developing a learning environment beneficial to the pupil in the classroom.

ACKNOWLEDGEMENTS

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THE PROBLEM — AN OVERVIEW

Introduction

This study is an attempt to discover upper elementary school children's humor preferences and the nature of influences upon them.

The three purposes of the study are explained and terms frequently used in the study are defined. This section is followed by a statement of the five questions investigated and a summary of the design of the study for classroom teachers is briefly discussed.

Statement of the Problem

Identifying the nature of what children find amusing seems to have received little attention from educators in the past. A gulf is often apparent between the postulations of learning theorists and the choices of materials and modes of presentation made by educators for children. This seems particularly so with regard to the incorporating of children's humor into classroom teaching.

Learning theorists have investigated the nature of humor and their investigations have provided three psychological perspectives from which it might be studied. Explanations of humor appreciation based on psychoanalytic theory are to be found in the writings of Freud (1905, 1928) and in works by later theorists like Wolfenstein (1951, 1953, 1954) and Mindess (1971).

The behavioural psychological viewpoint is explained by Berlyne (1972) and Suls (1972), while the cognitivist perspective is provided by a whole host of theorists among whom are Koestler (1964), Kagan (1967),

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McGhee (1971, 1972, 1973) and Zigler, Levine & Gould (1966, 1969).

From these and other related pieces of research there has emerged a number of important theories. Zigler, Levine & Gould (1969) examined the Freudian analysis of humor into tendentious and innocent categories and found the analysis to have some validity in that humor seemed to depend upon the affective nature of the interaction between the humor item and the recipient of the joke. The researchers suggested that there were some grounds for believing that children preferred innocent humor jokes rather than tendentious jokes. These were defined by Freud (1905) as jokes which evoked mirth at someone else's expense. Innocent humor was that in which amusement was evoked through a sense of pleasure at the technique of the joke or by the realization of the springing of "a neat practical trick upon a playful mind" (Eastman 1936).

Exploration of children's humor preferences according to the tenets of behavioural psychology has resulted in few published results to date. This contrasts with the research literature based on cognitive theories of children's humor motivation which explains the child's sense of humor as changing in accordance with the development of his mental operations. The effectance theory postulated by White (1959) and the cognitive congruency principle of Zigler, Levine & Gould (1969) and *Gestalt* theories of Maier (1932)and Schiller (1938) have formed cornerstones of the cognitivists' contribution to a conceptualization of humor processes.

The three principal perspectives on humor provided by psychological theorists, while not contradictory, seem to indicate that the child's

laughter at a joke may be the result of a complex interaction between a number of variables.

The importance of perceived incongruities as a humor stimulus has been observed by investigators of the development of language and cognition in the child. Their attention and observations would seem to suggest that, as well as the mediation of graphemes, a more fundamental form of processing of the joke is required. This more elemental mediation involves the child's utilization of symbolically significant referents in "seeing the joke." Thus the processes of development in thought and language may have a direct effect upon the child's extraction of significant meaning from a joke. Britton (1970) focuses precisely on this supposition in describing the child's use of words as being a process of comparison and adjustment between the individual's perception of his world and the reality.

In addition, the investigator's own observations of children's responses to humor suggest a link between humor appreciation and the individual capabilities of each child. On several occasions the investigator observed upper elementary grade children reading humorous selections to each other during their visits to the school library. The success of a joke, in terms of its capability to evoke laughter, varied between the children in the group. Such variations in the success of the jokes suggested that such success was dependent on the capabilities of each child.

Consequently, this study addresses itself to the problem of describing the complex interaction between a number of established variables and the humor responses of the sample. Those variables

established in the study relate to the cognitive, language and reading competencies of the children, while sex and grade level are considered as demographic variables.

Purposes of the Study

The study had three main purposes:

1. To design an instrument to permit the observation of the humor preferences of children in grades 4, 5 and 6.
2. To investigate the possibility that some children might prefer tendentious humor to innocent humor either in certain situations or at particular grade levels.
3. To examine the significance of relationships between humor preferences and the developing competencies of the child.

Definitions

The following represent definitions of terms as used in this study:

COGNITIVE LEVEL. The stage of mental operations utilized by a subject as revealed by his performance on certain cognitive tasks described by Inhelder & Piaget (1964) and further developed by Whyte (1967).

INNOCENT HUMOR. Jokes which derive their appeal from the recipient's pleasure at a feeling of intellectual success resulting from his realization of the incongruity of juxtaposed features within the content of a joke. Also referred to as NON-TENDENTIOUS HUMOR this type of amusement is exemplified by puns, Charlie Brown's profundities and

certain types of double-entendre which do not have sexual or aggressive connotations.

RECIPIENT OF A JOKE. The person to whom a joke is told either orally or in some printed form.

TENDENTIOUS HUMOR. Humor which evokes mirth by providing a release for feelings of aggression or shame. Banana skin and sexual jokes are examples of tendentious humor.

Questions Addressed by the Investigation

The following questions provided direction and purpose to this study:

Question 1. *Are relationships evident between the measures of cognitive ability, language maturity or reading competence, and humor scores?*

Question 2. *Are differences in humor preferences discernible between children at the one level of cognitive operations and those attaining a different level?*

Question 3. *Does humor appreciation reflect the enjoyment of a feeling of mastery over the content of a joke?*

Question 4. *Does the sex of the child influence his or her humor preferences?*

Question 5. *Do older children express a greater preference for anti-authoritarian tendentious humor than younger children?*

Design of the Study

Sample

Sixty children drawn equally from the three upper grades in two

elementary schools in Grande Prairie, Alberta, formed the sample for this investigation. The selection of individual subjects was controlled to provide three discrete age groups comprising equal numbers of girls and boys. The size of the sample was reduced to 57 for the analysis of the data due to the lack of current reading scores for three of the children.

The procedures

A pilot study was conducted in an Edmonton elementary school in April 1975 in order to test the effectiveness of the instruments to be used in the main investigation. Following the pilot study, which involved 12 subjects from the three upper grades, modifications were made to the instrumentation used in the larger investigation. The humor instrument and the assessment of cognitive level and language competence were administered to the subjects during one week in June.

Because of the nature of the investigation every effort was made to promote a relaxed atmosphere to avoid possible distortions of the scores by the Hawthorne effect.

The treatment of the data

Following the scoring of the responses in order to arrive at information in a form suitable for analysis, the data gained from the investigation were analysed by factorization. The factor analysis of the data resulted in six factors emerging to explain a large amount of the interaction between the tests employed.

The Significance of the Study

The salutary effects of a sense of humor on human relationships has long been recognised intuitively and scientifically. The part that a sense of humor can play in classroom relationships is described by Brumbaugh (1940), and numerous investigations have provided evidence of the importance of humorous content as a motivation in reading. Notable contributors in this field have been Ashley (1970), Lauritzen (1974), Nelson (1974) and Porter (1974).

However, despite the important function attributed to humor as a facilitator of the learning process, the materials and demeanours found most often in today's elementary school classrooms seem anything but humorous. They betray either a refusal to recognise the ubiquitous nature of Puck or a failure to recognise the nature of children's humor. The significance of this study is therefore twofold, in that it seeks to contribute to the teachers' understanding of children's humor in the context of general child development while illumining paths of future research.

CHAPTER II

THE RATIONALE FOR THE RESEARCH DESIGN

Introduction

The intent of this chapter is to present a rationale for the study of children's humor preferences. By the adoption of a phylogenetic viewpoint of humor, the works cited in this chapter will be seen to provide a rationale for the choice of instruments and procedures utilized in this investigation.

The chapter is divided into three related sections. The first of these describes briefly the historical evolution of humor in order to illustrate the parallel between changing sources of amusement through the ages and the ontogenesis of humor in the child.

In the subsequent section of the chapter the relationship of genetic epistemology and the ontogenesis of thought is discussed and related to the child's changing sense of humor.

The third major section addresses itself to the part that the child's language growth plays in influencing his sense of humor. This section concludes with a brief description of the method chosen for evaluating the language development of the subjects in the study.

The Phylogenesis of Humor

A perusal of the literature related to the nature of humor leads to the realization that the works may be divided into those which describe the changing nature of the successful joke and those which provide an analytical investigation of the successful joke today. These historical and psychological perspectives would seem to be unrelated.

However, it is the writer's contention that the study of children's humor may have a greater value if two perspectives are seen as parallel and complementary.

A study of the historical viewpoint reveals that what has constituted a source of amusement has changed through the ages. The public mirth of the ancient Greeks was of a kind having a harshness which would be regarded as coarse, vulgar, and sadistic in modern western culture. It was chiefly derived from the observation of physical or mental incapacity in the comic characters. Plato's view was that ". . . we laugh at the misfortunes of others, joyful that we do not share in those misfortunes" (Bury 1972). By the time of Aristotle the humor of the Ancient Greeks had begun to change somewhat. Laughter was no longer directed at the less fortunate individual *per se*, but rather at an archetypal figure using a mask to depict a particular misfortune. This process of abstraction by means of an archetype is glimpsed in a more developed form in the English literature of the fourteenth, fifteenth and sixteenth centuries. The wry humor of the *Canterbury Tales* and Shakespeare's blending of tragedy and comedy in Malvolio and Falstaff illustrate the use of representational characters to convey more abstract comedy than that of earlier periods.

The seventeenth-century philosopher Thomas Hobbes added an important dimension to the historical development of humor by noting that amusement could be evoked by the individual's feeling of pleasure at his own accomplishment.

By the twentieth century, writers such as Eastman (1936), Koestler (1964) and Leacock (1938) are able to describe humor as a mediational

process involving differing degrees of conceptualized abstraction. In Leacock's view the significance of the degradation principle, i.e. enjoyment of another's misfortune, has diminished through the ages. He suggests that this decline has been concomitant with the phylogenesis of Man. Koestler (1964) and Eastman (1936) suggest that differences in humor preferences between individuals today are influenced by the connotation placed on a situation by the recipient of the joke. This connotation is in turn influenced by the mental age and emotional maturity of the individual.

The evidence that humor appears to have undergone an evolutionary change concomitant with the phylogenesis of Man is largely dependent on intuitive non-specific sources. Furthermore, the genealogy of humor is obscured by the passage of time. Consequently, modern investigators of humor may opt for differing methods of investigation. One of these involves conducting an inquiry based on educated intuitions about the nature of humor. This entails testing subjects' mirth responses and seeking discernible patterns in those responses.

Alternatively, the investigators can study the phylogenetic evidence relating to humor and compare this with other evolutionary processes affecting the individual. Such an approach necessitates the study of epistogenesis and ontogenesis. The former, being the study of the development of knowledge, has been described by Piaget (1970) as having its parallel in the development of knowledge in the individual. Piaget contends that by the study of ontogenesis, the course of Man's mental evolution can be traced. Such a contention is most significant for the study of humor since both epistogenesis and the phylogenesis of humor

are obscured by history. Thus, in suggesting a correspondence between epistogenesis and the evolution of mirth, the ontogenesis of the individual becomes of central importance to the study of humor. It permits investigation of the extent to which changes in modes of thinking influence the sense of humor, and as such it serves as a sound basis for the utilization of appropriate instruments to measure humor appreciation.

Conceptualization of the study of humor in phylogenetically-related terms is depicted in Figure 1. This viewpoint would seem to enhance the purpose of the enquiry beyond that of merely finding out what makes children laugh. Instead, by seeking parallels with the relationship between epistogenesis and ontogenesis, why children laugh at certain jokes and not others may become clearer. Thus through consideration of the ontogenetic processes in the subjects, Man's knowledge of himself can be advanced. It is with this postulation that the relationship between epistogenesis and ontogenesis is addressed.

Epistogenesis, Ontogenesis and Their Significance to This Study

Piaget (1970) suggests that two principles fundamental to an understanding of the development of knowledge are the notions of constructivism and self regulation within the individual. He contends that increasing knowledge is the result of the continuous construction of ideas towards levels of greater abstraction and conceptualization. This building process, whether it be in the individual or in a culture, is one of duplicative stratification. Each stage of growth prepares

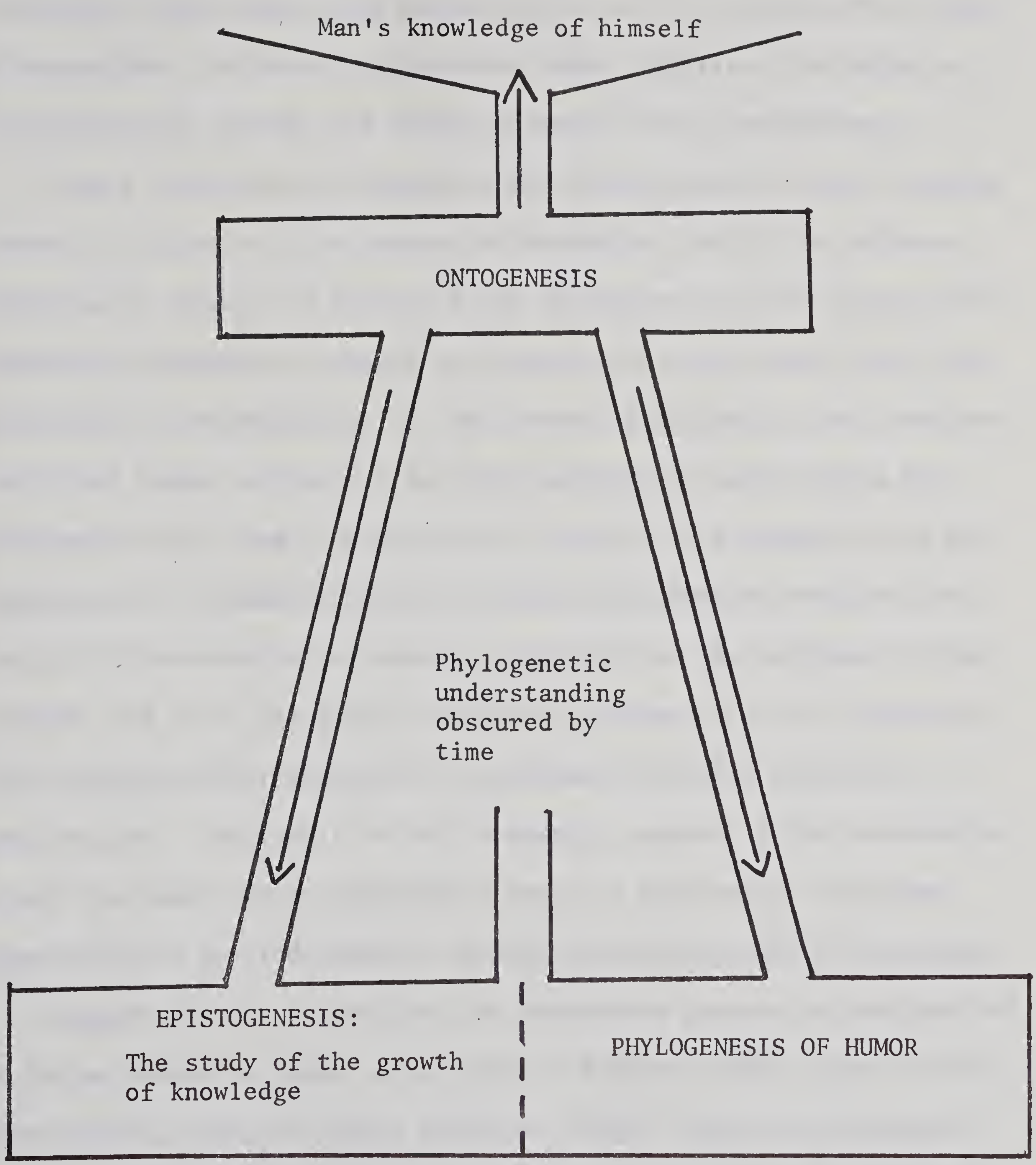

Figure 1. *The significance of ontogenesis to the study of knowledge and humor.*

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the way for a subsequent stage, while simultaneously ways of thinking at one operational level are reconstructed later at a more abstract level of thought. Thus, for example, the individual develops an increasing flexibility and capacity for de-centration at the sensory motor level of operations: he later reconstructs these cognitive strategies in his progression through the stages of each level of operations.

Piaget substantiates the principle of the duality of the learning process by allusion to the nature of knowledge itself. He believes knowledge to consist of facts and the validation of those facts in the broadening schemata of related information (or other facts) which the individual is accumulating. In the course of validating new facts the individual adapts either his existing schemata by assimilating the information into them or modifies his concepts to accommodate the new information. Validation of newly-received information requires that the child "interiorize" or operate internally on the externals of the message, and in so doing the individual performs in a self-regulatory way, mediating the information in accordance with his cognitive competencies. The result of this mediating process is the formulation within the reader of an operational image of the reality, an image appropriate to the individual's current level of cognitive development.

Support for the belief that the adaptation process is instrumental in the mediation of humor is provided by Bateson (1952), Kagan (1967), Maier (1932), Schiller (1938) and Shaw (1960). These investigators suggest that the first response to humorous material is an attempt to assimilate the joke into existing mental configurations. Realization of the existence of conflicts between the perceived material and existing

schematization of similar situations may lead to an attempt to assimilate the message. If the child is unable to reconcile the incongruity or conflict with existing schemes then this is because he lacks either a sufficient body of interiorized information or a sufficiently abstract level of conceptualization. In such a case the joke fails. Conversely, a child's reconciliation of the incongruity in a joke is the product of his ability to utilize a broader factual knowledge at an appropriately abstract level of thought. From this cognitively mature viewpoint the individual is able to attain what Monro (1951) calls "a god's-eye view," and from this elevated vantage point to modify the material or his previous conceptualizations to effect a reconciliation. Such operations should not be too easily executed if the humor is to be successful for it appears that the act of reconciliation is the flashpoint of humor. Zigler, Levine & Gould (1969) and McGhee (1973) have investigated what they call the "cognitive congruency principle." These investigators believe that jokes which place too great a demand on the cognitive competencies of the recipient are unsuccessful. Equally unsuccessful, however, are the jokes which are too easily understood by the recipient. Zigler, Levine & Gould suggest that for a joke to be successful it must present a manageable degree of cognitive challenge to the recipient. In order to meet the challenge, the individual must demonstrate his mastery over the implicit and explicit information in the joke. Successful demonstration of this mastery evokes a laughter response from the individual.

This mastery may not be restricted to the facts in the joke. Just as Piaget (1970) contends that a child's failure to understand a message

may be due to inadequate vocabulary or a lack of adequate concepts, so in humor the joke may be at too abstract a level of conceptualization for the child to grasp.

Such a supposition would help explain the differences in children's humor appreciation between one age group and another. The very young child derives sensory motor amusement from playing "This Little Pig" with his parent; the preoperational child laughs at accidental deviations in the routines of his world and at visual incongruities. The preoperational child also finds language experimentation amusing, a form of humor discussed more fully in the third part of this chapter. By the time a child has attained the level of concrete operations he has developed a riotous appreciation of perceptual incongruities, especially in the form of slapstick comedy. This prepares the way for a later stage of humor appreciation in which the child is able to derive amusement from conceptual incongruities. Such an ability requires the child to reconcile the joke's violations of schematized abstractions. At this operational level the individual becomes increasingly adept at applying to a joke the equivalent of second order operational thinking. With the development of an increasing mastery over the processes of propositional logic, the individual becomes less amused by a picture of a pail of water crashing on to the head of an unsuspecting victim entering a door. The individual capable of formal operations is amused instead by projecting the hypothetical results of the abstract conceptualization. Consequently, amusement may be created by the formulation of hypotheses set in train perhaps only by the thought of the pail or the precarious dignity of a particular individual. The element of

amusement might vary according to the identity of the projected victim, the particular door chosen or the contents of the pail, but most importantly it is derived from an interiorized abstraction comprising a host of variables. These may be derived from different schemata but they are combined and re-combined according to the operational flexibility of the individual's thinking. Finally, it must be emphasized that these combinations and recombinations exist independently of any particular external event; they are internalized abstractions.

This view of the final level of the development of children's humor finds its reflection in Piaget's theory of the ontogenesis of thought. He suggests that:

> . . . from the ontogenetic point of view, formalization may well be regarded as an extension of the process of reflective abstraction already present in the development of thought. But because of the increased specialization and generalization which formalization possesses, it exhibits a freedom and a richness of combinatorial possibilities which largely transcend the bounds of natural thoughts (Piaget, 1970, p. 64).

The literature on the humor of normal children abounds with evidence which would seem to support the postulation that the development of thinking and a sense of humor in the child are indeed closely linked. Notable studies testifying to such a close association include those of Cunningham (1962), Justin (1932), Kreitler & Kreitler (1970) and McGhee (1971a, 1971b). The work of these investigators indicates that children at different stages of development mediate humorous material in different ways and that the nature of what is appreciated as humorous differs between groups at different levels of cognitive development. The findings also suggest that the development of humor appreciation involves the individual's shunning of earlier modes of

humor mediation.

In subscribing to the theory that the evolution of humor in the child is associated with and a reflection of his ontogenesis of mental operations, one must be mindful of the concession Piaget (1970) makes to the empiricists. In accepting that knowledge has its purely factual aspect, he concedes that the external nature of the fact is of some importance. This may also be true in the ontogenesis of the sense of humor. For a broadly applicable categorization of the different natures of humor, investigators have often turned to Freud (1905, 1928) who classifies humor as being either "tendentious" or "innocent" ("non-tendentious"). Freud defines tendentious humor as being that which causes laughter at someone else's expense or which creates mirth through providing an outlet for suppressed feelings of guilt or shame. "Innocent" or "non-tendentious" humor, according to Freud, is that type which evokes laughter as a result of a feeling of intellectual success at the intellectual achievement of "seeing the joke."

Although Piaget (1970) suggests that the external nature of a fact is less important than the way in which it is mediated, the differing types of humor defined by Freud form part of the background to this study. This permits the investigation to determine whether one group in the sample expresses a greater preference for either category in comparison to the rest of the sample.

Language, Thought and Cognition

The relationship among language, thought and cognition may have considerable significance for a study of children's humor. Much of the

literature reviewed in the previous section of this study illustrated the importance of cognitive mediation in the appreciation of humor. The child's cognitive growth, his developing awareness of expanding relationships and perspectives, is interdependent with his language growth. Piaget (1955), Schmidt (1973) and Vygotsky (1962) have provided theoretical explanations of this interdependency.

Piaget (1955) believes that the development continua of thought and language are mutually dependent. He suggests that the child's thinking and language progress from egocentricity towards more socialized forms. In speech the child becomes more explicit while his thinking becomes more flexible and capable of a greater abstraction. Piaget believes that the stages of development are not synchronised but that cognitive growth is demonstrated in more mature modes of thought before it is reflected in language development.

Thus Piaget's theories of adaption and language growth have considerable relevance to the investigation of humor preferences. The theory of development by adaption postulates that growth is a continuous striving for equilibrium between the reciprocating processes of assimilation and accommodation. Its pertinence to the study of humor preferences is derived from the child's frequent use of humor as a social instrument with which to interact with others and thus expand his schemata. Piaget (1951) suggests that the sense of humor is nascent in the individual during the sensori motor stage when the infant laughs at being tickled and then, having gained the concept of object constancy, at hiding games. At this stage, the process of accommodating a host of new stimuli often elicits laughter. Piaget

(1951) believes that this stage is followed by a stage of imitative play which begins at approximately three years of age. He suggests that accommodation and assimilation begin to play more equal parts in the adaption process during this phase of development. Objects and people now serve as representations of other things during play and schemata constructed by the child are either idiosyncratic or communicable and are coexistent within the individual. In *The Language and Thought of the Child* Piaget (1955) suggests that the growth of communicable schemata raises the significance of language for the child, bestowing a more complex functional aspect to his speech. Thus the use of language in the form of more socialized speech is seen by Piaget (1955) as marking the beginning of a new dimension of growth in which children "try to improve upon mutual understanding of one another" (p. 68).

In seeking to improve his communication with others, the child begins to work towards an objectivity of thought. Piaget contends that it is only by the development of the ability to conceive of things objectively that the child can adequately maintain a beneficial, i.e. adaptive, relationship with an environment expanded beyond the confines of the sensori motor stage. However, Piaget (1955) believes that the development of thought is more advanced than that of speech in early school age children. Consequently, he believes that the striving for objectivity in verbal communication begins at about seven or eight years of age:

> . . . it is only from the age of 7 or 8 that there can be any talk of genuine understanding between children. Till then, the ego-centric factors of verbal expansion (elliptical style, indeterminate pronouns, etc.) and of understanding itself, as well as the derivative factors (such as lack of order in the accounts given, juxtaposition, etc.) are all too important to

> allow of any genuine understanding between children. Between the ages of 7 and 8 these factors become less active, and some of them (lack of order) even disappear (Piaget, 1955, p. 137-8).

Piaget (1955) suggests that the socialized speech of the young school age child retains much of the egocentricity of modes of thought demonstrated in verbal syncretism. The child has progressed in his mental development. He is now less dependent on intuition, imagistic schematization and egocentric conviction, all of which constitute the hallmark of syncretic perceptive intelligence (Piaget, 1955, p. 151). However, verbal syncretism appears at about seven or eight years of age.

This verbal syncretism, the extraction of meaning from language by consideration of the whole communication unit rather than by interpretation of the sum of its parts, is the linguistic counterpart of the earlier stage of thinking. As such it is part of the developmental continuum called language growth, and it prepares the way for a more analytical mediation of language. Piaget states: "In a word, the line of development of language, as of perception, is from the whole to the part, from syncretism to analysis, and not vice-versa" (p. 146). According to Piaget, verbal syncretism has two interdependent aspects, one being the syncretism of reasoning and the other the syncretism of understanding. Piaget explains the former as being that which occurs when a child compares two statements because of an imaginary implication produced from the general schema of the child (p. 148). Piaget (1955) illustrates the syncretism of reasoning by describing children's performances in a proverbs test in which two diverse statements are distorted in order to be united under a counterfeited association, "a subjective synthesis" (p. 152). Thus the child assimilates one phrase

into the schema of the other although the basis for his doing so may be rationally invalid.

The syncretism of understanding occurs when the child uses only the words with which he is familiar in a phrase as a basis for the construction of a schema. Into this schema the child then assimilates those words which are unfamiliar, bestowing on them meanings which may or may not be correct.

The child of upper elementary age is thus described by Piaget as being at the concrete operational stage of cognitive operations while simultaneously mediating his language in a syncretic manner. Since logic and language are important in the appreciation of humor it is conceivable that the child at this age may depend on concrete referents and syncretic strategies in order to interpret humor. It also seems conceivable that older children will be capable of interpreting the content of a joke with more objectivity and be more sensitive to dualities of meaning than younger students.

The significance of the theories of Vygotsky (1962) to the study of humor preferences lies in that theorist's belief that the child's intellectual growth is governed by the individual's mastery of language. Vygotsky suggests that thought and language are complementary. He claims that inner speech is dependent on the child's gradual acquisition of logical thought. However, continued intellectual growth is dependent on two aspects of his language, namely its structural attributes and its socio-cultural characteristics. Thus Vygotsky maintains that thought becomes verbal thought and that this change occurs during the development of the child, from infant organism to social being. The maturation of

language and intellect are explained as changing from purely biological to a form susceptible to social, historical and cultural influences.

In substantiating his theory of the relationship between language and thinking, Vygotsky describes his investigation of the development of concept formation. He believes this to pass from an initial syncretic stage of highly unstable grouping to a stage of grouping in complexes. This second stage of concept formation is marked by the child's construction of groupings of objects on the basis of subjective judgement and relationships which he perceives to exist between different objects. It is suggested that this marks the beginning of a move away from egocentricity and towards objectivity (Vygotsky, 1962). This stage of thinking in complexes relies upon concrete bonds between objects, and has substages in which Vygotsky describes the individual as thinking in associations then collections, followed by chain complexes, diffuse complexes and finally pseudoconcepts. This last stage of thinking in complexes is important because this phase of development is marked by children's word meanings being dependent on their understanding of the words as used by adult acquaintances. The effect of this is to channel the child's language and therefore his mode of thinking. Vygotsky contends that the child at this stage often presents an illusory understanding of a concept, illusory because that understanding is incomplete or imperfect. Vygotsky maintains that the concept eventually grows as a result of the child's use of the word in socialized speech. By this means the child's thoughts and language are seen as complementing each other and facilitating growth towards that final stage of intellectual development in which true concepts are acquired. According to Vygotsky

(1962) at this stage ". . . the abstracted traits are synthesized anew and the resulting abstract synthesis becomes the main instrument of thought" (p. 78). Bernstein (1961) offers related observations with regard to thought and language development prior to the attainment of concepts. He suggests that the social milieu of the child is a highly significant factor in his future intellectual and linguistic development.

Vygotsky (1962) suggests that the formation of true concepts does not occur until the onset of adolescence, and that children of upper elementary school age are at the stage of pseudo-concept formation. It is this contention, together with Vygotsky's belief that language and thought are influenced by society, history and culture, which has great relevance to a study of the humor of elementary school students. It is conceivable that thinking in pseudo-concepts may account for a child's failure to understand some verbal jokes, while social and cultural influences on his language and thinking may have some effect on his appreciation of jokes.

The theories of Vygotsky and Piaget are neither contradictory nor irreconcilable (Bain 1973). Commonalities between them which are significant to this study are that both theorists conceive of language and thinking as being mutually dependent and mutually beneficial. In addition, Vygotsky and Piaget see the growth of language and thought as being a development from egocentrism towards abstraction. This progress entails the movement of the child's intellectual and linguistic abilities towards a greater objectivity, a distantiation of self from the conception and expression of reality. In humor this is suggested by the changes which occur in the child's sources of amusement

from sensori motor "humor" to a humor derived from his knowledge of the synbolic significance of the word.

The importance of the child's growing ability to distantiate himself from his immediate experiences is explained by Schmidt (1973). The child gradually develops the ability to reflect on his world and to schematize things and people encountered in his expanding environment. Schmidt believes that this development takes the form of participative cognition in early infancy, a stage in which schemata are established and expanded. According to Schmidt, "The human child does not begin his life as an isolated organism but in a close, almost symbiotic relationship, first with the mother" (Schmidt 1973, p. 116). The interactional relationship, first with the mother and later with other individuals, serves to expand the cognitive horizons of the child. However, the formation of relationships with other individuals encompassed by the child's growing action space requires that the child's powers of communication are taxed. No longer is the holophrase, supplemented by gestures or facial expressions, sufficient for communication. The child is required to develop powers of contemplative cognition and to objectify his experiences. Language becomes a major tool in the interaction process. Thus:

> Closely related to this concept of increasing reflectiveness is what we may call distantiating oneself from what one is experiencing. By this is meant that instead of being lost in organic sensation or at the mercy of strong emotions or under the compulsion to act and react only, in the course of normal growth the child becomes able to reflect on those experiences — that is to look at them from a greater distance. Language is extremely important here . . . the child has greater distance from his own experience, and sharing the experience helps him set it in a wider perspective (Schmidt 1973, p. 108).

Humor and play

Freud (1960) and Fry (1963) postulate that the ontogenesis of humor passes through the stages of verbal play, followed by jesting or spontaneous humor and culminating in the stage of the joke proper. Weir (1962) and Chukovsky (1963) lend substance to these postulations. Weir's book, *Language in the Crib*, is a documentation of her son's playful enjoyment of language. It illustrates the child's simultaneous use of language both as a physical stimulus and a means of amusement. The instrumental value of the word inherent in its meaning is only gradually realized as the child grows beyond infancy and utilizes language in communicable schemata which can be used to provide pleasure. This gradual realization is noted by Chukovsky in his book *From Two to Five*. He describes how the child's first understandings of words and of the interrelationships of these symbolizations creates a feeling of mastery in the child, who then uses the power of perceived or created discrepancies to provide opportunities for mirth. Chukovsky calls those discrepancies which are deliberately created by the child "topsy turvies" and suggests that they figure prominently in traditional children's folklore, having had an appeal to succeeding generations of young children. Chukovsky quotes several examples of topsy-turvies in order to show how the child enjoys discrepancies, either involving the odd combination of disparate objects or utilizing a play on some other form of incongruity. The Russian form:

> On the sea the corn kiln burns
> While the ship runs in the cornfield

has its equivalent in English:

> The Man in the wilderness asked me, "How many
> strawberries grow in the sea?" I answered,
> "As many as red herrings grow in the wood."
> (Chukovsky 1963, p. 95)

An example of a topsy-turvey which utilizes a play on incongruity is the Russian favorite:

> The blind man gazes
> The deaf man listens
> The cripple runs a race
> The mute cries help.
> (Chukovsky 1963, p. 96)

This has its English equivalent:

> One fine day in the middle of the night
> Two dead men got up to fight
> Back to back they faced each other
> Drew their swords and shot each other.

Chukovsky (1963) repeatedly emphasizes his belief that this type of verbal humor is only used by those children who have gained some mastery over the symbolizations incorporated into the rhymes: ". . . to be able to respond to these playful rhymes the child must have a knowledge of the real order of things" (Chukovsky 1963, p. 95). Chukovsky also suggests that it is important for adults to remember that the children are aware of the nonsensical quality of this type of verbal humor. He believes that "the ascribing of incongruous functions to objects attracts them as a diversion" (Chukovsky 1963, p. 95).

The cognitive function of humorous play

Chukovsky's observations of the young child's humor (verbal) are important for two reasons. Firstly, Chukovsky illustrates the importance of the child's feeling of mastery as prerequisite for enjoyment of this type of humor. White (1959) argues that cognitive development, which is interrelated with language growth, is motivated by a striving for

efficacy. White (1959) suggests that all learning is a process "in which behaviour has an exploratory, varying experimental character and produces changes in the stimulus field" (p. 329).

This belief that learning is the result of moderate but persistent motivation is both echoed and supplemented by Britton (1970) in his discussion of language development. He sees language learning as being motivated by a desire to construct an effective representation of reality within the child. Furthermore, once the individual has attained a feeling of mastery by the effective construction of the perceived reality, he is able to use it for amusement. Britton (1970) states:

> Any verbal representation is a kind of template, and . . . we try that template for fit. Discrepancies are both matters of serious concern and, looked at with some detachment, opportunities for laughter. Moreover, we may take the joke a stage further and deliberately create a misfit (p. 107).

The second reason that Chukovsky's observations are important is that they are a natural prologue to Britton's explanation of verbal humor in that the verbal play of children can be seen as a natural progression from infancy to adolescence.

Britton's (1970) postulation that the child uses language as the means of schematizing reality also substantiates Vygotsky's argument that language growth is influenced by the society, culture and history of his expanding environment. The individual, according to Britton (1970), is compelled to modify his language use for increasingly varied contexts and modes and to express thoughts of increasing complexity and abstractedness. Britton points out that the influences on a child's language and thought change and diversify most during childhood. Parental influences become less monopolistic, and the child becomes more susceptible to those of peer groups.

Lewis (1963) claims that this continual expansion of the child's social environment, which receives an added impetus with the start of schooling, gives extra momentum to the child's language development. The growing individual is constantly faced with new language tasks to master and, having achieved that mastery, greater possibilities for play. He is led into more socialized situations; solitary play is relinquished, first for parallel play, and later for more socialized language use in games and play. The child uses his language to gain acceptance from his peer group, according to Lewis. The children's use of language for this purpose is extensively documented by Opie & Opie (1959) and summarized by Lewis (1963).

The increasingly social function of speech and language in general places a greater demand on the child's skills of communicating and formulating new concepts. Ausubel (1968) and Bruner (1966) substantiate the view that language growth is nurtured by a desire for mastery of the communication modes encountered in the child's expanding social and cultural environment. Ausubel (1968) contends that:

> In the abstracting, categorizing and differentiating and generalizing aspects of combining and transforming known concepts into new abstractions, generic ideas are not sufficiently manipulable themselves to be handled in these designated ways. It is only because complex concept meanings can be represented by single words that these combinational and transformational operations become possible (p. 81).

Thus the child is required to hone his language skills to communicate his thoughts and ideas which become increasingly more complex, calling forth a greater degree of abstraction in his language.

Bruner (1966) sees the growth of the child's language as a process of cognitive growth and simultaneous burgeoning of a sense of mastery

and extension of the linguistic tool used imperfectly during earlier years. The individual uses the culturally endowed forms of organisation inherent in his language, but as his intellectual development surpasses his language skills he is compelled to improve those skills in order to express his more mature and individualized thoughts.

Thus while the child's power of communication increases, it does so as a result of his growing ability to construct internal symbolizations of his schematic conceptualization of reality. This explanation of the development of language and thinking, based on the insights provided by Piaget and Vygotsky, and supplemented by Ausubel and Bruner and Britton, is cognisant of the social and cultural influences acting upon the child's language. The influence of the home and the peer group on the child's schematization wax and wane in succession, while his unique experiences add tincture and texture to his perception of the environment.

Evidence to substantiate theories of language development, particularly with regard to White's (1959) effectance theory, may be found from a variety of sources. In addition to the evidence provided by Weir (1962), Chukovsky (1963) and Opie & Opie (1959), the theories of language development are rendered more credible by consideration of their universality of application to many in which the amusement and cognitive growth of the child are united. Some are knee-bouncing games involving what Schmidt (1973) calls co-responsive participation. They simultaneously provide amusement through "the economy of psychic expenditure" (Freud 1960) or Berlyne's (1972) "arousal boost."

À Paris, à Paris	Off to Paris, off to Paris
Sur mon petit cheval gris;	On my little grey mare;
À Melum, à Melum	To Melum, to Melum
Sur mon petit cheval brun;	On my little brown mare;
À Montrouge, à Montrouge	To Montrouge, to Montrouge
Sur mon petit cheval rouge.	On my little red mare.

Hoppe, hoppe, Reiter	Hop, hop, horseman
Wenn er Fallt dans schreitler	If he falls, he'll cry
Fallt er in den Graben	If he falls in the ditch
Fressen ihn die Reben	Then the crows will eat him
Fallt er in den Sump'	If he falls in the swamp,
Mach der reiter plump.	He will go down like this.

And:

Ride a cock horse to Banbury Cross
To see a fine lady on a white horse
Rings on her fingers and bells on her toes
And she will have music wherever she goes.
(Selvi 1956)

Selvi's collection of verbal plays also illustrates the socio-cultural conditioning process which influences the child's schematization of his growing world. Thus children learn concretely the abstractions of number, the days of the week, the letters of the alphabet, by which their particular cultures are regulated:

Lundi partit mardi,	Monday left on Thursday,
Passa par mercredi	Passed through Wednesday
Pour averter jeudi	To warn Thursday
De se froriver vendredi	Sure to be on Friday
Aux noces samedi	At Saturday's wedding,
Qui se feront dimanche.	To be held on Sunday.

(Selvi 1956)

The amusement of the child can be seen as taking various linguistic forms as he grows towards adulthood. Selvi (1956) and Opie & Opie (1959) have described the verbal amusements of children as incorporating incongruities or violations of reality often with a desire for superiority over the recipient of the joke. Thus riddles are cited by the researchers as being a common form of verbal humor among pre-adolescents. Selvi has observed that these riddles can involve a high degree of verbal and intellectual sophistication based upon the play upon words used in the joke. Selvi also records that verbal play and joking can require the participants in the joke to operate in several languages simultaneously. Citing jokes and games played by multi-lingual Thai children,

Selvi notes that such pastimes are only popular with older children who have attained a degree of competence in the languages necessary for these jokes. He suggests that the children derive pleasure from this type of humor because it provides an opportunity to enhance their knowledge of the languages while also giving the participant a feeling of intellectual success at his mastery of the joke's content.

Measuring language development

The sense of humor in the elementary school child is subject to diverse forms of motivation and is closely linked to his language development. An investigation of children's humor preferences in the upper elementary grades necessitates the use of a test by which the cognitive and language powers of the individual subject can be assessed.

Piaget (1955) used proverbs as the basis of a test of the verbal understanding of children between nine and eleven years of age. By asking the subjects to match proverbs with sentences which they thought expressed the meaning of the proverb in a different way, Piaget found that the children were seldom sensitive to the wider significance of each proverb although they understood it as a simple statement. Furthermore, Piaget found evidence of the use of verbal syncretism in most of the responses, in that many of the sentences chosen as interpretations were selected despite the subjects' not understanding the proverb. Piaget distinguishes two types of verbal syncretism used by children of this age. The first of these, which he called syncretism of understanding, is created by the child's dependence on the *gestaltqualitat* perceived in the proverb and the selected sentence. The child uses perceived similarities of the whole proverb and the entire statement as his

criterion for pairing them, and ignores meanings. Syncretism of reasoning is the second type of verbal syncretism identified by Piaget (1955). This type of syncretism is evident when the child depends on words he recognises in the statement and the proverb, and while incorporating these into his schema he bestows meanings on the words he does not know in order to make them fit the organisation of ideas in which he has united the proverb and the statement.

The use of a proverbs test also permitted Piaget to identify and describe another facet of the relationship of language and thought in the elementary school years, namely the child's need for "justification at all costs." Piaget believes this to be a vestigial influence of egocentric thought which here manifests itself in verbal syncretism. This lingering of egocentric behavior is a result of the child seeing everything as being related to everything else in what Piaget calls "a network of general schemas built up of imagery, of analogies of detail, and of contingent circumstances" (Piaget 1955).

Church (1954), cited by Grant (1972), used proverbs in order to investigate the development of verbal intelligence. Church contends that development proceeds "from the global to the articulated, from a narrow to a broad span of apprehension, from concrete to abstract, and from rigidity to flexibility" (p. 152). In the investigation by Church, one hundred boys ranging in age from eight years eight months to thirteen years eight months were given three pairs of contradictory proverbs. These were:

> Absence makes the heart grow fonder.
> Out of sight, out of mind.
>
> Forgive and forget.
> Revenge is sweet.

Everything comes to he who waits.
The wheel that squeaks gets the grease.

Each subject was required to define each proverb, reconcile the contradiction between each pair and redefine the proverbs. Church found that scores for each task increased with the age of the subjects. The investigator's results also substantiated Piaget's theory of verbal syncretism, particularly regarding the performances of younger subjects. Furthermore, Church noted that the younger subjects seemed unaware of any universal significance for each of the proverbs, responses generally seeking to relate a proverb to a particular person, event or situation.

Richardson and Church (1956) conducted a further investigation of children's responses to proverbs in order to effect methodological improvements and to illumine further the nature of the development of verbal intelligence. Sixty-four children between the ages of seven years ten months and twelve years five months were asked to provide meanings for seven proverbs. Each subject was assigned to one of four groups, each group representing an age range of one year. The results are tabulated in Table 1. The proverbs used were:

An ounce of prevention is worth a pound of cure.
Don't cross your bridges until you get to them.
Every cloud has a silver lining.
All that glitters is not gold.
Don't cry over spilt milk.
Where there's smoke, there's fire.
You can't teach on old dog new tricks.

The investigators examined the subjects' responses in terms of orientation to the task and comprehension. Richardson and Church found that

Table 1. Distribution of subjects by age and sex.

Group	*N*	*Age range*	*Mean age*	*Boys*	*Girls*
I	16	7:1 - 8:7	8:4	7	9
II	15	9:0 - 9:11	9:5	7	8
III	15	10:0 - 10:11	10:5	9	6
IV	17	11:0 - 12:5	11:6	12	5

Source: Richardson and Church (1956, p. 170).

orientation was varied and diffuse among the younger children but became more precise with each successive age group. Comprehension of the proverbs also improved with each age group, becoming less concrete and more general in apprehension. Literal interpretations were gradually replaced by mixed literal, and metaphoric interpretations were evident.

Grant (1972) used a Proverbs Test modelled on that used by Richardson and Church (1956) in her investigation of the relationship between reading, language and cognitive style. The responses of 75 grade six students to the seven proverbs were used to furnish a qualitative indication of maturity in language behaviour. Two of Grant's hypotheses were that a unity of verbal habit is apparent in the correlation of different measures of language performance, and that the tendency to give abstract responses on measures of language differentiation will be significantly related to cognitive style. Zero correlations were found between Proverb Scores and Spontaneous Flexibility Scores, leading Grant to suggest that the process of differentiation in language, i.e. the refinement of symbolic structures into progressively more specific semantic units (Grant 1972, p. 316), is unrelated to the ability to comprehend symbolic abstractions present in the proverbs.

Significant correlations were observed between qualitative responses for the Proverbs and Vocabulary measures. Abstract responses on the Proverbs Test correlated with abstract responses on the Vocabulary measure, while a similar correlation was discernible for the Concrete Response Scores for both measures.

Grant also found that the unity of verbal habit across Proverb and Vocabulary measures is significantly related to abilities in reading comprehension (Grant 1972, p. 279).

The results of the study suggest that the Proverbs Test as used by Grant not only provides a means of measuring the developmental progression of children's proverb interpretation, but that it also furnishes an excellent measure of an individual's stage of maturity with respect to verbal thought since the quality of verbal thought, particularly as reflected by the child's ability to generalize and to think in abstract terms, may well be associated with the appreciation of verbal humor. Grant's Proverbs Test and her findings therefore seem of value to this study.

Summary

The purpose of this chapter has been to review some of the literature which has influenced the orientation of this study. It is suggested that Man's sense of humor, like his knowledge, has evolved through time. The value of the consideration of humor from an ontogenetic viewpoint is discussed, and parallels drawn between the ontogenesis of humor and cognitive development in the individual.

The significance of language in thinking is explained and this explanation focusses the reader's attention on ways in which children of different ages engage in playful learning with their language.

The chapter concludes with a description of the use of proverbs to measure the language skills used by children.

CHAPTER III

THE DESIGN OF THE STUDY

Introduction

The intent of this chapter is to describe the design of the study. Following this introduction, the sample used in this investigation is described in detail and the criteria for the selection of the subjects are explained.

The next major section of the chapter describes the procedures followed in the administration of the instruments used to collect data, and this leads naturally to the section of the chapter in which the measurement of the variables is discussed.

This discussion is followed by a detailed explanation of the methods of scoring used for the humor instrument, the Proverbs Test, the cognitive tasks and the reading measures. In this section the conversion of the subjects' scores into forms suitable for the treatment of the data is described.

The discussion of the statistical technique employed in the study forms the subsequent part of the chapter. The nature and purpose of factor analysis are briefly outlined to serve as a rationale for its utilization in this investigation.

Five questions were formulated in order to provide direction to the enquiry into children's humor. These five questions appear in the last major part of the chapter, and are followed by a concluding summary.

The Sample

The students participating in either the pilot study or the main investigation were selected according to certain criteria. Each subject

was

1) in either grade 4, 5 or 6,
2) within two months of the median age for the grade,
3) known to have taken the customary number of years to reach his or her present grade level,
4) known to have attended Canadian schools since grade one,
5) a user of English as a first language.

The samples for both the pilot study and the larger investigation consisted of correspondingly equal numbers of boys and girls at each grade level. The main study initially involved 60 children equally drawn from two elementary schools in Grande Prairie, Alberta. The school, sex and grade distribution is shown in Table 2.

The Procedures

The humor instrument and the tests of subjects' competencies in language and cognitive operations were administered throughout a period of one week in June 1975. Because of the nature of the investigation it was considered important that the investigator spend some time with the students in activities not strictly related to the collection of data. This helped to dispel any feelings in the students that particular types of responses were required or that the instruments administered were tests crucial to their immediate academic standings.

This section of the chapter provides a detailed explanation of the procedures used in the administration of the tests used in this study. The sequence in which they are described corresponds to the order in which they were administered to the subjects.

Table 2. Age, grade and sex distribution in the sample.

School	*Sex*	*Grade*	*Initial number of subjects*
A	F	4	5
A	F	5	5
A	F	6	5
A	M	4	5
A	M	5	5
A	M	6	5
B	F	4	5
B	F	5	5
B	F	6	5
B	M	4	5
B	M	5	5
B	M	6	5

The humor instrument

The humor instrument was administered to small informal groups of children during four sessions. The sessions were not timed, each child being allowed to work through the instrument at his own speed. Between the sessions brief intervals of informal talk helped the children to relax and also dispelled any subjects' feelings of being tested. During each session the subjects were encouraged to position themselves comfortably and to react naturally to the material in the instrument.

The initial instructions to the subjects served two purposes. Firstly, the instructions were intended to convey the non-stressful nature of the test and the value to the investigator of each subject's personal judgement of the material. Secondly, the directions given were intended to explain how the children were to record their reactions to each item. To help in the explanation a transparency of the Likert scale and the accompanying question mark was projected on a screen to complement the oral explanation given by the investigator (Appendix A).

The detailed instructions given prior to the administration of the oral element E1 are contained in Appendix A. The instructions for the subsequent elements were more brief, consisting mainly of informing the students of the nature of the contents of the booklet and reminding them to write their names on its front cover.

The subjects in one school received Elements 2, 3 and 4 in three separate booklets over the course of two days. The other half of the sample received these three elements in three randomized booklets. In the randomized form of the instrument the principle of pairing a tendentious and a non-tendentious joke was maintained, so that no subject

reacted to several tendentious jokes consecutively before reading a non-tendentious joke, or vice versa.

The Proverbs Test

The Proverbs Test, intended to measure language competency, was administered individually to each subject on the day after the humor test was completed. The explanation of the task was the same as that used by Grant (1973). The conversation between each subject and the investigator was recorded on audio tape for subsequent analysis and scoring.

The cognitive tasks

The administration of the three cognitive tests was done in accordance with the procedures used by Whyte (1969). As with the proverbs test, the cognitive tasks were administered individually to each student. The student and the investigator sat at opposite sides of a large table. The apparatus for each successive task was arranged accessibly at one end of the table. The sequence of the tasks was uniform for all students in the sample, the first being the multiplicative classification task, the second being the two matrices tests and the third the test for the duality principle. Each student's responses were recorded in coded form in a separate booklet bearing the student's name. This recording was done during the procedures and provided sufficient information for the assigning of levels of performance to the student on each of the three tasks.

The reading tests

Scores for the Stanford Intermediate Reading Tests, Form W, were

collected from the test records maintained in the schools used for the main study. Scores for three of the students were not available on account of their having recently enrolled at the school. These three students were a grade four boy, a grade six girl, and a grade six boy. Consequently these three subjects were excluded from the sample when the data were prepared for analysis.

The Measurement of the Variables

The humor instrument

In order to seek a comprehensive view of the humor enjoyed by children in the upper elementary grades it was necessary to consider spontaneity and diversity as prime criteria for guiding the choice of instrument design. The method of collecting the students' responses needed to be one which, by its simplicity, freed the subjects from preoccupations with complex coding requirements. It was felt that spontaneity of response could be further ensured by the removal of any feeling in the subjects that they were being closely observed by the investigator.

Diversity of content was considered important in that it was felt that the use of various formats might reveal important differences among the subjects in their ability to understand or appreciate the jokes. In addition, the inclusion of oral jokes and cartoons in the humor battery might help reduce anxieties induced by what might be seen as a test situation.

It was felt that the jokes should also be varied in nature as well as format. The variation was based on analyses of humor found in

the literature on the subject. Freud (1960) defined two categories of humor which he labelled "tendentious humor" and non-tendentious or "innocent" humor. The former type might be briefly described as humor which evokes mirth either at someone else's expense, or that which amuses because it provides a release of suppressed feelings of guilt or shame.

Non-tendentious or "innocent" humor is that which causes laughter when the recipient realizes and resolves perceptual or conceptual incongruities contained within the joke.

The classification of humor into the two categories, devised by Freud (1960) and widely used by other researchers (Fry 1963, Goldstein & McGhee 1972, Grziwok & Scodel 1956), was considered important to this study in order to explore the possibility of some subjects preferring one category to the other. Consequently, it was decided that equal numbers of jokes, judged by the investigator to be of either tendentious or innocent nature, should appear in the instrument.

A review of the literature failed to yield a description of any previously used instrument satisfying the criteria of spontaneity of response and having a diversity of content. This necessitated the conducting of a pilot study to test the effectiveness of an instrument devised by the investigator. The initial humor instrument tested in the pilot study consisted of 80 jokes. This collection was divided into four elements which were selected in order to explore the children's preferences for humor in different forms. The four elements were designated Elements One through Four. Element One consisted of oral humor, namely jokes which were told to the subjects by means of a tape

recording. This method was selected in preference to having the investigator tell the jokes in order to remove the possibility of non-verbal signals interfering with the responses of the subjects. Element Two consisted of cartoons, while Elements Three and Four were made up of short prose and poetry respectively. For brevity, the designations of the four Elements were abbreviated to E1 to E4 inclusive.

The use of four different formats seemed to serve several purposes. It permitted investigation of possible differences in appreciation of the different forms of humor within and between grade levels. It also reduced the likelihood that the subjects would view the administration of the instrument as a formal test. The subjects' encounter with the oral jokes as the first stage of the instrument would help the students relax, reduce their anxieties, and probably produce results not influenced by the Hawthorne effect.

The collection of 80 examples of humor was taken from a larger number of 180 jokes garnered by the investigator from children's books, magazines and newspapers over a period of four months. In order to select the 80 jokes to be used in the pilot study, copies of the larger number of jokes were distributed to a panel of five adult judges. All the panel members were associated with the Department of Elementary Education, University of Alberta. Several of the judges were parents. Each of the five panelists was asked to assign a score from zero to five to each joke, basing the judgement on the degree of appeal which the joke might have for children in the upper elementary grades. The five judges' scores were then combined for each joke.

Following the calculations of scores for the jokes, each one was then rank ordered within its Element and within its category as shown

in Figure 2. The ten jokes with the highest scores in each category and format were then used for the humor instrument. This method of selection resulted in a lack of preference strength between the jokes of different categories and formats, since the judges perferred jokes of certain kinds to others. Consequently, two jokes in different Elements, for example, may have occupied the same positions in the rank ordering but might have received different scores. What appears initially to be a shortcoming of this method of selection might not really be so, since it provides a means of checking the congruence of adult and children's humor preferences.

The organisation of the humor instrument was such that the subject was able to react spontaneously to each joke without being distracted by other items in the instrument. Each printed joke was placed on a separate page of the booklet which formed a part of the instrument. The *verso* page was chosen to display the joke, and the means of recording the response was placed on the *recto* page. This simplified the subject's task of responding since it utilized the natural left-to-right progression used in reading.

The means of recording the subject's response to each item in the instrument was in the form of a modified five point Likert scale. To facilitate the task of responding, the usual printed descriptions of each point in the Likert scale were adapted in a manner similar to that used by Terry (1972). This modification entailed the substitution of drawings of Snoopy, the cartoon character in the series by Charles Schultz, for the printed descriptions of each point in the scale. Four of the five points used drawings of Snoopy in various postures to denote

A	B	Jokes as numbered in final instrument									
Innocent	5	20	22	24	26	30	34				
	4	28	32	36	38						
	3										
Tendentious	5	35									
	4	21	23	29	31	37					
	3	33	25	27	39						

Cartoons
(E2)

A	B	Jokes as numbered in final instrument									
Innocent	5	44	46	56	60						
	4	42	48	50	52	54	58				
	3										
Tendentious	5	43	45	53	55	57	59				
	4	41	47	49							
	3	51									

Poems
(E3)

A: Humor category.

B. Preference strength of jokes expressed by five adult panelists.

Figure 2. *Examples of method of scoring adult screening.*

differing degrees of mirth. In the pilot study, a question mark was used to represent the mid-point on the scale. This was intended to provide an opportunity to respond for those subjects who were uncertain of how they felt towards a particular joke.

The use of Terry's form of the Likert scale was decided upon after the investigator enquired among children of various ages to determine the current jargon used to express different degrees of amusement. It was found that the children questioned depended on gesture and/or intonation to express qualitatively different verbal responses to jokes. Verbal appreciation was limited in the number and variety of statements used. Typical appreciative statements were "That's good," "That's funny." Most heavily dependent on intonation for its significance was the single word response "Funny!".

The adapted Likert scale was drawn vertically on the right hand side of the *recto* page, with the most amused response at the top and the least amused at the bottom, as shown in Appendix A. The subjects were asked to record their responses to each joke by placing a check mark in a space provided by the drawing which best depicted how they felt about that joke. The instrument was administered in four sessions spread over one and a half days. No time limit was imposed for the administration of each section.

The testing of the humor instrument in a pilot study permitted the investigator to improve its design. The pilot study revealed that the use of a question mark to signify an undecided response resulted in its being used ambiguously. Conversation with the subjects in the pilot study seemed to indicate that some students had used the question mark

category because they could not recognise the item as a joke, while others had used it because they thought a joke either not funny or extremely puerile. This ambiguity was removed for the main study by replacing the question mark with a drawing of a picture of Snoopy with a straight face, showing neither amusement nor antipathy. The question mark was relocated away from the Likert scale and to its left, to signify that it was not a part of the Likert continuum, but was to be checked if the respondent did not identify the item as being a joke. The verbal instructions to be given in the main investigation were amended appropriately to include an explanation of the question mark.

Other changes were made in the organisation of the instrument to facilitate scoring by the investigator. Each joke was given a number from one through 80, the tendentious jokes being allotted the odd numbers, while innocent jokes were given the even numbers. Each joke was placed on the same page as the Likert scale. The scale was reduced and moved closer to the right hand side of the *recto* page.

Finally, minor graphic changes were made to the drawings of Snoopy to accentuate the degree of mirth represented by each picture. A sample page from the final form of the humor instrument appears in Appendix A.

In seeking factors which might be related to the type of humor preferred by certain groups of children, measures of four different types of subject maturity were selected. These were language ability, cognitive operational level, reading ability, and grade level. The consideration of these measures was intended to permit investigation of the possible relationships between subjects' levels of competency in language, thinking and reading, and their humor preferences.

Language competencies

The measurement of language competency was considered important as most humor is communicated through the medium of language, although this is not always exclusively so. The individual's ability to attribute a variety of symbolic meanings to a verbal message enables him to attach additional significance to the message (Payne 1972, Siemens 1973). Such an ability may result in a greater aptitude for the reconciliation of the apparent initial incongruities which form the basis of many jokes.

The instrument used to obtain a measure of the subjects' levels of language ability was the Proverbs Test. Devised by Richardson and Church (1958) and modified by Grant (1973), the test consisted of an investigator asking a subject to explain the meanings of seven proverbs. The proverbs used in the test are:

1) An ounce of prevention is worth a pound of cure.
2) Don't cross your bridges until you get to them.
3) Every cloud has a silver lining.
4) All that glitters is not gold.
5) Don't cry over spilt milk.
6) Where there's smoke there's fire.
7) You can't teach an old dog new tricks.

Grant's use of the Proverbs Test entailed analysis of each subject's answers according to six dimensions. These were orientation, correctness, generality of statement, literal metaphoric understanding, abstractedness and omission. The subject was scored on the orientation dimension according to whether the answer was a definition of the proverb or showed another orientation to the task. Orientations other than definition were

identified as being either explanation, verification of the proverb's veracity or description of a situation summarized by the proverb. The correctness dimension was scored from 0 to 2 to provide an indication of the subject's correctness of interpretation of a proverb. Each subject received two points for a correct interpretation expressed as a general statement, one point for a partially correct response and a zero score for an incorrect or inappropriate response. The generality of statement dimension permitted an investigator to record a response as being either of a conceptual or specific nature. The literal metaphoric dimension was a 3-point scale to measure the subject's ability to interpret the proverb as a metaphorical representation of another meaning. Each response could be recorded as either a literal, mixed literal-metaphoric or metaphoric interpretation. Grant's abstractedness scale served to record the subject's ability to conceive of a proverb as having a greater degree of significance in space and time than the proverbial statement. The abstractedness scale recorded the quality of the response on a continuum from 0 to 4. Thus apprehension of the proverb in terms of a timeless proposition received four points on the scale. Apprehension of the proverb as a timeless event, being a less abstract understanding, received three points. Two points were awarded for a response which suggested the subject's interpretation of the proverb in terms of concrete reality but involving some understanding of the possibility of wider applications. Interpretation of the proverb as relating to a concrete happening or experience was awarded one point. Responses which constituted a repetition of the proverb received a zero rating on the scale. The sixth dimension used by Grant

(1973) to score student responses was for those answers which were classed as omissions, being responses which signified that the subject was not able to offer any ideas about the meaning of the proverb. All six dimensions were considered mutually exclusive for the purposes of arriving at a summation of each subject's understanding of a proverb.

Of Grant's six dimensions, three were used in this study to analyse the responses of the students to the Proverbs Test. These were the dimensions of correctness, literal-metaphoric interpretation and abstractedness.

Cognitive abilities

Obtaining measures of the subjects' cognitive abilities entailed administering certain tasks which would make apparent a gradation useful for scoring purposes. The tasks were chosen from the work of Inhelder & Piaget (1964 translation) and Baldwin (1967) since such exercises held the promise of providing identification of sub-stages of cognitive development. The tests selected require the subject to employ powers of classificatory reasoning, powers which are enhanced by language ability according to Inhelder & Piaget (1964 translation, p. 2). A relationship may thus be suggested between classificatory reasoning, language ability and the derivation of enjoyment from humor, since all three require the ability to symbolize and interpret meaning. As well as permitting graduated scoring and having a possible relationship to language and humor, the tests selected were well described and authenticated in the literature.

Two tasks were selected for testing in the pilot study. These were a multiplicative classification task requiring the subject to form

initial criterial groupings of shapes and colors (Inhelder & Piaget 1964, pp. 192-4) and a matrix task involving the bi-univocal multiplication of relations (Baldwin 1967, pp. 260-2). The subjects' performances in the pilot study revealed that the two tasks failed to produce scores which permitted sufficiently fine discriminations to be made between the cognitive abilities demonstrated by the students. Of the twelve subjects in the pilot study, all were able to divide the 16 shapes into four criterion-bound groups correctly. In contrast, only one subject was able to complete the matrix combining two asymmetrical attributes.

Because of the lack of discriminatory potential of these tests with students of the grade four, five and six levels. this part of the study was revised before investigation of the larger sample of 60 students. Revision of the cognitive tests took the form of replacing the bi-univocal multiplication of relations task with two pictorial matrices tests. In addition a test for the duality principle was added. The multiplicative classification task using shapes and colours was retained.

The revised cognitive battery formed an instrument more capable of yielding scores representing fine gradations between different groups of subjects. The tests had the advantage of having been developed and tested in recent studies, most notably that of Whyte (1969). To increase the reliability of the scores obtained, Whyte's procedures and scoring system were also used. The procedures are shown in Appendix B, while the scoring system is described later in this chapter.

The multiplicative classification task used for the main investigation required each subject to sort and respond to questions about 16

wooden shapes. They included four blue circles, four blue squares, four red circles and four red squares. The matrices tests both relied upon a subject's realization of three criteria used simultaneously to select the correct card from eight available to fill a vacant cell in a 4-cell matrix. One test used the criteria of shape, colour and orientation of the image on the cards, while the second task required the consideration of the shape, colour and size of the drawings to solve the problem (Inhelder & Piaget,1964, p. 161). Some modification of the apparatus used for the shape, colour and orientation test was necessary on account of the availability of suitable pictures. This modification entailed the substitution of a squirrel for the dog used in the Inhelder-Piaget form of the test. The three criteria of size, shape and colour were maintained.

The apparatus for the test for the duality principle was also modified from that used by Whyte (1969). The material devised by Whyte consisted of 12 cards two inches square, on each of which was mounted a picture of a different bird or animal. The pictures were of a cow, horse, pig, lamb, dog, four birds not ducks, and three ducks.

The materials used in this study substituted a picture of a lamb for that of a cat, included a rooster as one of the birds which were not ducks, and used one large duck and two ducklings.

The adaptations of Whyte's original apparatus seemed not to affect the subjects' performances on the task. One exception was the inclusion of the rooster as a bird which was not a duck. Two subjects, one in grade four and one in grade five, became confused by the use of the rooster in the test. Both wrongly sorted it as an animal, reasoning that it could be found on a farm together with the horse, cow and pig.

This error caused both subjects to fail all the questions on spontaneous classification, that part of the test requiring the subject to sort the pictures into a group of birds and a group of animals. The grade five subject was able to correct her mistake when she sought to use the pictures as concrete referents to answer the first of the general questions on inclusion, "Are there more birds or more animals?".

Reading competencies

The subjects' scores on the Stanford Intermediate Reading Test, Form W, were also collected. Use of these scores, converted to stanines, permitted the investigation to include the study of the degree to which different humor preferences might be influenced by varied reading abilities within the group.

Research into the reliability and validity of the Stanford Tests as measures of reading ability revealed that the authors of the tests claimed reliability co-efficients of .90 and .92 respectively for their Intermediate I battery. No evidence to disprove these claims was to be found in the evaluative literature (Burros 1953—1972). Doubts about the validity of the Stanford Tests as effective measures of reading ability are expressed by Helen M. Robinson in her evaluation of the tests (Burros, 1959). These doubts arise from the tests' reliance on requiring the student to choose words from a given group to fit a context. The evaluator feels that the tests' total dependence upon this method gives an unfair advantage to children practiced in the use of context clues, and that it does not test the children's ability to perceive the main idea, draw conclusions or determine the feelings of characters in the text.

The testing program of the Grande Prairie School District 2357 utilizes the Stanford Reading Tests for word meaning and paragraph meaning only in grades four and five. As grade six students were included in the investigation, the scores for this grade were not recent ones, a shortcoming to be considered in any interpretation of reading scores as a factor of expressed humor preferences in this study.

The Scoring of the Tests

The humor instrument

Each of the five points on the Likert scale which accompanied each joke was assigned a numerical value between 1 and 5 inclusive. The minimum value, 1, was given to the Likert scale point indicating the least amused picture of Snoopy. The maximum value, 5, was assigned to the topmost picture on the Likert scale, namely that drawing showing the most amused response. In addition, that category of response which was to be used by a subject not recognising the item as a joke (i.e. the question mark category) was assigned a numerical value of 1. The values for the Likert scale points and the "Don't know" response are shown in Figure 3.

The maximum score obtainable for either the tendentious or innocent jokes in each Element was 50 (10 jokes x 5 points for most amused response).

The minimum score obtainable was 10 (10 jokes x 1 point for the least amused response).

In preparing the data for analysis, the investigator treated the scores obtained on the Likert scale and the "Don't know" responses as separate data entries since each conveyed essentially different

Subject 04 (Grade 4 girl, School A)

1 Subject, E1 (Tendentious)

Maximum number of jokes - 10

Likert point scores:	5	4	3	2	1	Don't Know score:	1
	x	x	x	x	x		x
No. of jokes per point	4	0	2	0	2		2
Scores	20	0	6	0	2		2
Likert total:			28			DK total	2

Figure 3. *Method of scoring humor instrument.*

information. This separation of the data is shown in Figure 3.

The preferences of the 57 subjects for each of the 80 jokes were represented by 4560 single numerical values. These yielded 456 scores per child per element. To ensure the reliability of the data input all the scores were checked first by the investigator, then by an adult assistant and finally by means of a random check of 10% of the scores using an electronic calculator.

The Proverbs Test

Of the six dimensions of proverb interpretation measured by Grant (1973), three were utilized to collect data for this study. These were:

a) correctness
b) literal-metaphoric interpretation
c) abstractedness of the ideas conveyed in the subject's response.

a) *Correctness dimension*

The procedure used in scoring the first dimension, that of "correctness," departed somewhat from that used by Grant in that "omissions" were included in this dimension. An "omission" was understood to occur when the student either remained silent after prompting, or when he said that he didn't know what the proverb meant, thereby suggesting that further prompting would be futile. The synthesis of the "correctness" and "omission" dimensions seemed to permit a parsimonious retention of the latter category while retaining recognition of the incorrect response as being statistically different from no response at all.

Thus the numerical values assigned to the responses when analysed according to the correctness category were as follows:

3 points Correct interpretation of the proverb, expressed in a general statement.

Example: An ounce of prevention is worth a pound of cure.

"It's better to fix something when it first begins to go wrong instead of letting the situation get worse, 'cos then it takes a lot of work to make it right again."
(Grade 5 girl)

2 points A partially correct response, expressing some understanding of general applicability.

Example: Don't cry over spilt milk.

"A person shouldn't cry when an accident happens, just try to make the best of it."
(Grade 6 boy)

1 point Incorrect or inappropriate interpretation.

Example: Where there's smoke there's fire.

"There's lots of smoke." (Grade 4 girl)

0 points Omission.

Example: All that glitters is not gold.

"I don't know that one." (Grade 5 girl)

b) *Literal-metaphoric dimension*

A 3-point scale was used to score the literal-metaphoric dimension of interpretation, thus:

3 points Metaphoric response: embodying interpretive features indicating an ability to understand that objects mentioned in the proverb were of greater significance than their immediate concrete referents.

Example: Where there's smoke there's fire.

"Small things wrong are usually signs that there's bigger trouble behind them."
(Grade 6 boy)

2 points Mixed literal and metaphoric response: embodying some understanding of a wider significance to the proverb's content, often indicated by attributing metaphoric interpretation to one part of the proverb but not the other.

Example: Every cloud has a silver lining.

"Even storm clouds bring good to a person." (Grade 6 boy)

1 point Literal response: treating the proverb as a statement of simple fact.

Example: You can't teach an old dog new tricks.

"When a dog gets old you can't teach him new things . . . 'cos his joints get stiff and he can't jump or anything like that." (Grade 4 boy)

c) *Abstractedness dimension*

In order to score each subject's responses on the "abstractedness of response" dimension a 5-point scale was used.

4 points Apprehension of the proverb in terms of a timeless proposition.

Example: Don't cross your bridges until you get to them.

"People should never worry about difficulties in the future. They should wait until nearer the difficulty then they can see how to get round it." (Grade 5 girl)

3 points Apprehension of the proverb in terms of a timeless event.

Example: Don't cry over spilt milk.

"Don't get upset when an accident happens." (Grade 6 boy)

2 points Apprehension of the proverb in terms of concrete realities.

Example: All that glitters is not gold.

"Just because it shines, that doesn't mean something is really made of gold." (Grade 5 girl)

1 point Apprehension of the proverb in terms of a concrete happening.

Example: Where there's smoke there's fire.

"We saw all this smoke in the sky and when we got there my uncle's house was on fire." (Grade 4 girl)

0 points Repetition of the proverb or omission.

Example: You can't teach an old dog new tricks.

"You can't show a dog thats old how to do new tricks." (Grade 4 boy)

The subjective nature of the scoring of the responses on the three interpretive dimensions necessitated a reliability check by two adults not associated with the investigation. The responses of six randomly selected subjects were distributed to the two independent judges and the scoring system explained. Application of the Arrington formula, used by Feifel and Lorge (1950), to the scoring by the two independent judges yielded reliability levels of 90.90 and 94.10 respectively.

The cognitive tasks

Each subject was required to attempt four cognitive tasks, the administration of which followed the protocols developed by Whyte (1969). The tasks were as follows:

a) Multiplicative classification task using squares and circles of two different colours.

b) Matrix task using a 4-cell matrix with one empty cell. The pictures used were of birds and squirrels of two different colours and facing different ways. The attributes to be considered were shape, colour and orientation.

c) Matrix task using a 4-cell matrix as in b) above. Pictures used were of two different flowers in two different colours and of two sizes. The attributes to be considered were shape, colour and size.

d) Test for the understanding of the duality principle using pictures of five different animals, four birds not ducks, and three ducks.

The same scoring system as that used by Whyte (1969) was used to identify the stages of cognitive development at which the subject operated as indicated by his responses.

Whyte's scoring criteria are described below:

a) *Multiplicative classification*

Stage I. Score: 1 point	Subject makes graphic collections when asked to make a spontaneous classification (i.e., in response to the instruction, "Put together those that are alike, those that go together."
Stage II. Score: 2 points	Subject may make one or a combination of several responses: he can sort by only one criterion: colour or shape; he sorts into only two of the four partitions; he sorts into four groups but refuses to recombine by more than one criterion (or he may refuse to group by either criterion); in the partitioned box he combines on the diagonal rather than by a class (colour in one direction and shape in the other) on the parallel.
Stage III. Score: 3 points	Subject sorts on the parallel and answers all questions correctly (i.e., he recognises the multiplicative classification).

b),c) *The multiplication of classes (matrices)*

Stage I. Score: 0 points	Subject either unable to respond or completely incorrect response given.
Stage II. Score: 1 point	Subject provides a graphic solution in that he chooses the correct picture to fill the vacant cell but his justification is based on two criteria only. Consequently the question, "Could you put anything else there?" may yield an alternative justifiable according to the stated, but incomplete attributes.
Stage IIIA. Score: 2 points	Subject gives an operational answer but incomplete reasons are given. Realizes that no alternative card may be placed in the vacant cell.
Stage IIIB. Score: 3 points	Subject gives an operational answer, chooses the correct solution, justifies it according to the three attributes, and realizes that no alternative card may be placed in the vacant cell.

Because of the use of pictures differing slightly from those used by Inhelder & Piaget (1964), two matrices tasks were administered in this investigation. An average of the two resulting scores was calculated and entered as the datum for each subject's performance on the tasks.

d) *The test for understanding of the duality principle*

Stage I. Score: 1 point	The subject is able to accomplish all the parts of the task relating to spontaneous classification, able to divide the pictures into birds and other animals and form the subclass of ducks.
Stage II. Score: 2 points	Subject is able to answer correctly all the general questions on class inclusion, i.e. "Are there more birds or more animals?" and "Are there more ducks or more birds?".
Stage III. Score: 3 points	Subject is able to answer questions successfully on the duality principle involving subtraction of classes: i.e. "If all the ducks in the world were killed, would there be any birds left?" "If all the birds in the world were killed, would there be any ducks left?" "If all the animals in the world were killed, would there be any birds left?" "If all the birds in the world were killed, would there be any animals left?" Subject is also able to provide a correct justification for each answer.
Stage IV. Score: 4 points	Subject is able to successfully answer all questions on the duality principle and justify those answers. Subject has no need to use Stage III-type questions involving the subtraction of classes. Stage IV questions were: "Can you show me all the things which are not ducks, and all those which are not birds?" "Can you show me all the things which are not birds and all those which are not animals?" "Are there more living things which are not ducks or more living things which are not birds?" "Are there more living things which are not birds or more living things which are not animals?"

The frequent use and improvement of the test by Whyte (1969) and associates suggested that the protocols and scoring methodology had a high degree of reliability.

The reading measures

The scoring of the word meaning and paragraph meaning sections of the Stanford Intermediate Reading Test, Form W, was done by the teachers in the schools attended by the subjects. Preparation of these data for analysis in this investigation took the form of converting each subject's scores into stanines using the scales provided by the publishers of the tests.

The Treatment of the Data

Factor analysis was used as a means of analysis of the data collected because it provides an analytic method ideally suited to the study of the factors involved in children's humor appreciation. Such a study constitutes a field which has been subjected to little scientific investigation. Royce (1950) conceives of all scientific enquiry as necessarily having three sequential stages. The first of these consists of surveying and analysing the domain in order to make some tentative identification of possible underlying variables. The second and third sequential stages of scientific enquiry involve further investigation of each of the identified variables and the study of how each of the identified variables may be affected experimentally in a laboratory setting. The first stage, the survey and analysis of the field to identify possible factors, allows the investigator to study individual differences represented by the test scores. By this means the common sources of variation between members of the population can be explored. Fruchter (1954) suggests that ". . . factor analysis attempts to account statistically for differences in traits among individuals rather than for the mental organisation within any one individual" (p. 3).

As an analytic approach, factor analysis makes it possible for the investigator to begin to identify the form of the underlying structure which appears to be operative within a large number of variables. The value of factor analysis in this respect has been advocated by Henrysson (1957) and Thurstone (1947). The latter believes that: "We start with no hypothesis, but we proceed instead with a set of measurements or indices that cover the domain, hoping to discover in the factorial analysis the nature of the underlying order " (p. 55).

This application of factor analysis is supported by Henrysson (1957). Calling such an application of the method "explorative factor analysis" Henrysson suggests that its primary value can be in mapping a domain about which there is a paucity of theoretical or empirical knowledge. The results of explorative factor analysis, unlike those of descriptive factorial study, can then serve as a basis for the formulation of initial hypotheses to permit the exploration of the underlying factors with greater scientific rigor.

The Questions Asked

A survey of the literature relating to humor provides evidence that the humor preferences of different individuals may be dissimilar because of the influence of several variables. Chief among these are the developmental trends occurring in the individual as he grows towards adulthood. The influences of different degrees of cognitive development, language maturity and reading ability as well as social development, feature prominently in the literature as conjectured influences on the type of humor preferred by different individuals. Opie & Opie (1959) observed the greater use and enjoyment of aggressive and socially

reprehensible types of humor among boys compared to girls. Although not generally supported elsewhere in the literature, the influence of the sex of the subject as a variable in humor response should not be discounted.

Consideration of the range of variables suggested in the literature as being influential in children's humor appreciation led to the formulation of five principal questions for investigation in the study. The articulation of each question is followed by a brief rationale related to each specific question.

Question 1. *Are relationships evident between the measures of cognitive ability, language maturity or reading competence, and humor scores?*

Since humor may be heavily dependent on the successful mediation of symbolic messages, the degree to which the individual is able to divine the significance of the content of the joke should vary in accordance with his stage of growth in thinking, language, and reading.

Comparisons of scores derived from different sections or elements of the instrument requiring increasingly mature language mediation may indicate the significance of language competence as an influence on the appreciation of humor.

Similarly, different elements of the instrument required more mature reading ability in order to appreciate the content. Although the words used in the material were screened to ensure that they were all within the decoding ability of an average grade four child, the length and syntactical complexity of the jokes increased with each succeeding section of the instrument, thereby placing greater demands upon the comprehension skills of the student.

In addition to the relationship of humor appreciation to the

variables of cognitive development, language competence and reading ability, the treatment of the collected data also permitted the investigation of the nature of different types of humor appreciation. The existence of the opportunity for this investigation led to the formulation of further questions.

Question 2. *Are differences in humor preferences discernible between children at one level of cognitive operations and those attaining a different level?*

The findings of Piaget (1955) would suggest that children at the concrete level of operations would be more responsive to humor which embodied perceptual messages, while more cognitively advanced children would be able to appreciate conceptual violations. Thus those children whose scores on the cognitive tasks indicated that they were still functioning at the concrete operational stage might express a greater appreciation of cartoon humor, while more advanced students might be expected to show a greater preference for purely verbal humor.

Investigation of such results would provide substantiation for Piaget's contention that language development lags behind mental growth (Piaget 1955). Furthermore, the influence of cognitive level on humor appreciation may also be active in negative ways, a proposition which generates the formulation of the third question addressed by this investigation, namely:

Question 3. *Does humor appreciation reflect the enjoyment of a feeling of mastery over the content of a joke?*

White's effectance theory (White, 1959) and the contention of Britton (1970) and Chukovsky (1964) that the child first masters an idea and then uses it for play may be substantiated by an investigation of

the differences in humor appreciation between the subjects. In addition, McGhee (1973) has suggested that a "cognitive congruency principle" may be active in influencing humor response, in that a joke elicits a poor response from a recipient not because the individual does not understand the content, but because it is too easily assimilated.

The consideration of societal influences in humor appreciation should not be ignored and has led to the formulation of the fourth question asked in this study.

Question 4. *Does the sex of the child influence his or her humor preferences?*

The examples of children's scatological humor collected by Opie & Opie (1959) suggest that children derive amusement from jokes which violate the culturally dictated bounds of propriety. However, this form of tendentious humor is hardly suited to a study of this nature because of the ethical implications which its use would engender. Nevertheless, its success as reported by the Opies does seem to suggest that the culturally endowed attitudes and feelings of the recipient of a joke may be influential in the subject's response. Since even today, the cultural conditioning of a child differs according to the sex of the individual, an investigation of humor responses in relation to the variable of sexual identity may prove to be of considerable interest.

Question 5. *Do older children express a greater preference for anti-authoritarian tendentious humor than younger children?*

Britton (1970) suggests that maturation and the concomitant encounters with different peer groups, especially those which are subcultural, may result in a preference for humor which mocks adult authority or adults in general. The early adolescent's identification

with the exclusive peer group is reflected in some of the language plays collected by Opie & Opie (1959). Britton (1970) believes that belonging to an adolescent peer group is accompanied by the expression of defensive derision directed towards adult behaviours and conventions. Britton suggests that the expression of this derision is an indication of the child's desire for independence, a desire counteracted by his need for a feeling of the safety of a group. This theoretical explanation of adolescent behaviours, which owes much to the work of Erikson (1968), may well be substantiated by an investigation of the relationship between expressed humor preferences and the ages of the subjects.

Summary

This chapter was concerned with the description of the design of the investigation and consisted of six major sections preceded by a brief introduction.

In the first of these sections the nature of the sample and the selection criteria used for selecting the subjects were described.

This was followed by an outline of the procedures used in the administration of the various instruments utilized in the investigation.

A detailed description of each one of the instruments used to record humor preferences or to assess the subjects' degrees of competency in language, thinking and reading followed the outline of the procedures.

This discussion led naturally to the subsequent part of the chapter in which were provided details of the scoring systems for each test. In this section, the methods of converting the subjects' scores into forms suitable for their treatment as data were explained.

The statistical method chosen as a means of processing the data

was described in the penultimate major section of the chapter. The suitability of factorial analysis as a method for exploring possible interrelationships between tests was discussed. This discussion served as a rationale for its utilization in this study.

The five major questions formulated to provide the orientation for the study were outlined in the final major part of the chapter and this outline was followed by a concluding summary of the aspects of design discussed.

CHAPTER IV

THE ANALYSIS OF THE DATA

Introduction

This chapter is concerned with the interpretation of the data gathered for the investigation of children's humor preferences.

A brief discussion of the value of factor analysis as a statistical approach to this investigation is followed by a description of the results of the analysis.

Each of the six Factors which emerged from the Varimax rotation of the orthogonal structure is discussed and a tentative hypothesis relating to the interactions found within each Factor is suggested.

Factor Analysis

Factor analysis is a statistical technique which permits the study of the interactions between a large number of variables. The statistical method depends on the establishing of what Thurstone (1947) calls "a factorial structure." The scores for each test or variable are plotted within this factorial structure. Such a procedure is more informative than the calculation of intercorrelations between variables, since the latter procedure merely provides an indication of how much one test is like another. It does not provide a means of identifying, however tentatively, what might constitute that likeness.

However, the conversion of a table of intercorrelations into a factor loading matrix permits the identification of a pattern of factors in which the interactions between the variables can be clearly seen (Thurstone 1947, p. 87).

Such a procedure as factor analysis would seem excellently suited to an investigation of children's humor preferences; an investigation in which information was gathered to examine the possible relationships of diverse attributes of the subjects to the children's preferences in humor. Consequently, the data collected for this study were analysed by the Principal Axis method of factoring. This provides for the extraction of factors from the data in the order of the amount of variance accounted for.

The resulting factor loading matrix was then rotated according to the Varimax procedure to provide a clearer picture of the results of the analysis. The transformation matrix used in the rotation is shown in Table 4.

The Results of the Factor Analysis

The analysis of the data by factoring resulted in the emergence of six principal factors which together accounted for 76.050% of the total variance in the 20 tests. The unrotated factor loading matrix and the Varimax matrix appear in Tables 3 and 5, respectively. For the purposes of discussion the six respective factors of Table 5 have been designated Factors I through VI.

Factor I: *The Mastery Factor*

Factor I, shown in Table 6, accounted for 20.9% of the total variance. The loadings in this Factor were on Tests 8 through 11 and Test 20. It would seem that those subjects who gave high preference scores to the parts of the humor instrument requiring a sophisticated integration of reading language and thinking skills, also tended to use the

Table 3. Unrotated factor loading matrix using orthogonal structure.

*Unrotated Factor Loading Matrix (H**2 - Communalities)*

Test	*H**2*	*Factor*						*H**2*
		1	2	3	4	5	6	
1	0.821	-0.044	0.248	0.313	0.078	-0.404	0.700	0.821
2	0.791	0.173	0.018	0.734	0.324	0.335	-0.068	0.791
3	0.655	-0.251	0.602	0.068	-0.360	0.295	-0.094	0.655
4	0.792	0.682	0.161	0.432	0.034	-0.198	0.271	0.792
5	0.704	0.754	-0.033	0.334	0.139	-0.055	0.007	0.704
6	0.823	0.828	0.062	0.113	0.175	0.299	0.023	0.823
7	0.777	0.609	0.129	0.034	0.250	0.570	0.016	0.777
8	0.800	0.641	0.487	-0.188	-0.274	-0.195	-0.056	0.800
9	0.812	0.698	0.321	-0.169	-0.260	-0.257	-0.243	0.812
10	0.718	0.796	0.241	-0.080	0.070	-0.056	0.109	0.718
11	0.654	0.598	0.224	-0.448	0.122	-0.095	-0.143	0.654
12	0.884	-0.285	0.813	0.299	0.034	-0.101	-0.201	0.884
13	0.898	-0.301	0.812	0.278	0.032	-0.130	-0.232	0.898
14	0.931	-0.357	0.822	0.297	0.045	-0.021	-0.195	0.931
15	0.517	-0.204	0.376	-0.252	-0.138	0.283	0.414	0.517
16	0.639	-0.145	0.419	-0.194	-0.282	0.510	0.255	0.639
17	0.469	-0.224	0.542	-0.042	-0.221	-0.041	0.270	0.469
18	0.917	-0.192	0.399	-0.348	0.769	-0.089	0.000	0.917
19	0.877	-0.166	0.506	-0.450	0.618	0.002	0.097	0.877
20	0.732	-0.685	-0.394	0.207	0.252	-0.024	-0.008	0.732
Variance		5.023	4.097	1.949	1.705	1.314	1.123	
% Total variance		25.114	20.483	9.746	8.525	6.569	5.614	
% Common variance		33.022	26.933	12.815	11.210	8.638	7.382	

Sum of communalities = 15.210

Total variance accounted for = 76.051%

Table 4. Transformation matrix used to arrive at Varimax rotation.

0.801	-0.299	0.474	-0.108	-0.169	0.066
0.380	0.773	0.033	0.299	0.386	0.135
-0.318	0.411	0.528	-0.479	-0.309	0.355
-0.225	-0.058	0.392	0.814	-0.353	0.073
-0.226	-0.109	0.583	-0.048	0.597	-0.488
-0.109	-0.359	0.042	0.069	0.495	0.779

Table 5. Factor loading matrix resulting from the application of the Varimax procedure.

*Varimax Factor Loading Matrix (H**2 = Communalities)*

Test	*H**2*	*Factor*						*H**2*
		1	2	3	4	5	6	
1	0.821	-0.043	0.122	-0.023	0.060	0.084	0.891	0.821
2	0.791	-0.229	0.233	0.790	-0.122	-0.197	0.082	0.791
3	0.655	0.031	0.590	-0.036	-0.140	0.511	-0.155	0.655
4	0.792	0.478	0.020	0.466	-0.177	-0.183	0.530	0.792
5	0.704	0.466	-0.118	0.556	-0.135	-0.322	0.206	0.704
6	0.823	0.542	-0.204	0.698	0.005	-0.023	-0.013	0.823
7	0.777	0.340	-0.150	0.742	0.134	0.197	-0.178	0.777
8	0.800	0.870	0.165	-0.003	-0.050	0.090	0.073	0.800
9	0.812	0.878	0.101	-0.010	-0.114	-0.124	-0.054	0.812
10	0.718	0.740	-0.121	0.342	-0.092	-0.021	0.173	0.718
11	0.654	0.717	-0.135	0.041	0.312	-0.047	-0.146	0.654
12	0.884	0.023	0.918	-0.004	0.149	0.098	0.092	0.884
13	0.898	0.026	0.927	-0.042	0.158	0.075	0.074	0.898
14	0.931	-0.053	0.934	0.012	0.166	0.162	0.055	0.931
15	0.517	-0.018	0.077	-0.089	0.158	0.680	0.122	0.517
16	0.639	0.026	0.157	0.040	-0.003	0.777	-0.093	0.639
17	0.469	0.069	0.389	-0.210	0.047	0.447	0.258	0.469
18	0.917	-0.045	0.188	-0.012	0.937	-0.030	0.018	0.917
19	0.877	0.052	0.185	-0.052	0.894	0.193	0.018	0.877
20	0.732	-0.815	-0.024	-0.144	0.062	-0.207	-0.001	0.732
Variance		4.176	3.392	2.387	2.010	1.898	1.347	
% Total variance		20.878	16.960	11.937	10.049	9.492	6.734	
% Common variance		27.453	22.302	15.696	13.214	12.481	8.855	

Sum of communalities = 15.210

Total variance accounted for = 76.050%

Table 6. Interpretation of Factor I.

Test	*Relevant test descriptions*	
1		-0.043
2		-0.229
3		0.031
4		0.478
5		0.466
6		0.524
7		0.340
8	Tendentious prose	0.870
9	Non-tendentious prose	0.878
10	Tendentious poetry	0.740
11	Non-tendentious poetry	0.717
12		0.023
13		0.026
14		-0.053
15		-0.018
16		0.026
17		0.069
18		-0.045
19		0.052
20	"Don't know" category	-0.815

Don't Know response minimally throughout the humor instrument. Conversely, students who had not yet attained a mastery over those skills would use the "Don't know" response more frequently because, in their preoccupation with the medium they failed to fully understand the message.

In order to test the possiblity of such a hypothesis being correct, two subgroups of the total sample were isolated for comparison. One group, called Group X, consisted of the six students in the total sample who used Test 20 responses most frequently; while Group Y consisted of the six subjects who used Don't Know responses most infrequently.

The humor scores for each group member were derived only from those jokes for which the subjects used the Likert scale. These scores, and their means per part of the humor instrument, are shown in Tables 7 and 8.

A comparison of the mean scores for each group reveals that differences between the two groups are of indeterminate significance for Tests 4 through 7. However, the differences between the two groups become more appreciable on Tests 8 through 11, those involving the mediation of humorous poetry and prose. The disparity between Groups X and Y is larger on Tests 8 and 9 than on Tests 10 and 11. Since the maximum score on each humor test was 50, the scores of Group Y, shown in Table 8, may be seen as indicating a high degree of preference for humorous poetry and prose, as well as a greater control or mastery over the whole instrument. In contrast, Table 7 shows that subjects in Group X were almost unanimous in giving preference scores below 50% for Tests 8 through 11. This difference in the humor scores is seen even more clearly in Figure 4 in which the differences in humor scores between the two groups are depicted graphically.

Table 7. Humor scores of 10% of the sample recording the highest number of "Don't know" responses (Group X).

Test No.	4	5	6	7	8	9	10	11	20
Description	Oral Tend.	Oral Non-tend.	Cartoons Tend.	Cartoons Non-tend.	Poetry Tend.	Poetry Non-tend.	Prose Tend.	Prose Non-tend.	Total "Don't know" Responses
Subject									
Gr. 4 girl School A	6	10	3	13	0	0	0	0	60
Gr. 6 boy School B	16	20	12	20	6	3	8	11	27
Gr. 6 boy School B	18	24	25	45	8	6	23	21	29
Gr. 4 boy School B	26	50	45	50	22	20	32	36	18
Gr. 4 boy School A	29	37	30	30	27	19	41	39	17
Gr. 4 girl School A	30	37	36	41	13	33	30	19	16
Means	20.83	27.33	25.16	33.16	12.66	16.0	22.33	26.13	27.33

Table 8. Humor scores of 10% of the sample recording the lowest number of "Don't know" responses (Group Y).

Test No.	4	5	6	7	8	9	10	11	20
Description	Oral Tend.	Oral Non-tend.	Cartoons Tend.	Cartoons Non-tend.	Poetry Tend.	Poetry Non-tend.	Prose Tend.	Prose Non-tend.	Total "Don't know" Responses
Subject									
Gr. 5 girls School A	24	34	28	37	32	30	29	32	0
Gr. 6 girls School A	27	43	23	40	42	34	35	40	0
Gr. 4 boys School B	37	40	42	44	30	41	47	41	0
Gr. 4 girls School A	23	32	35	34	21	23	29	8	2
Gr. 6 girls School A	25	31	35	38	37	43	40	44	2
Gr. 6 boys School A	42	41	42	43	43	45	40	45	2
Means	29.66	35.16	34.16	37.33	34.16	36.00	36.66	36.33	1.00

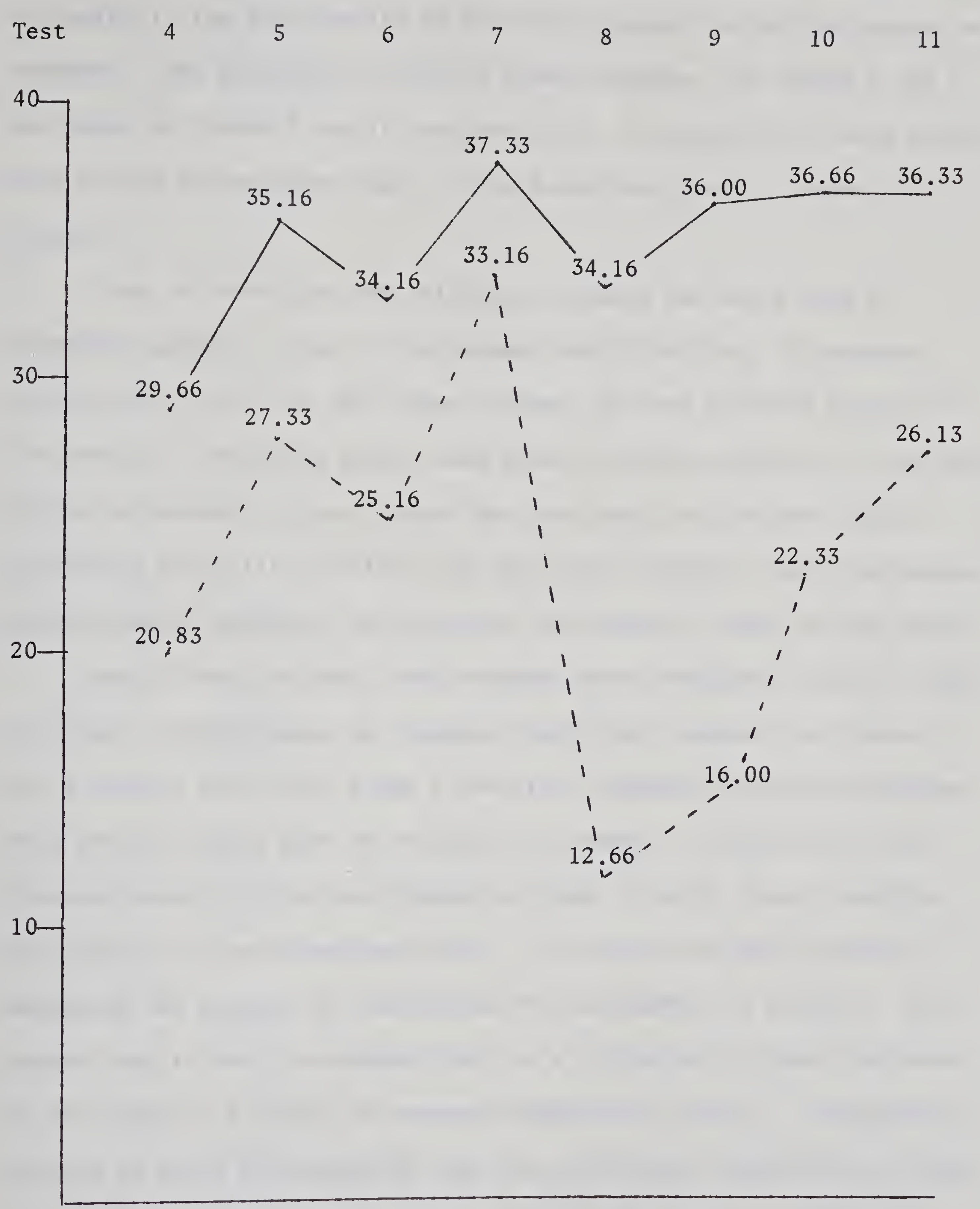
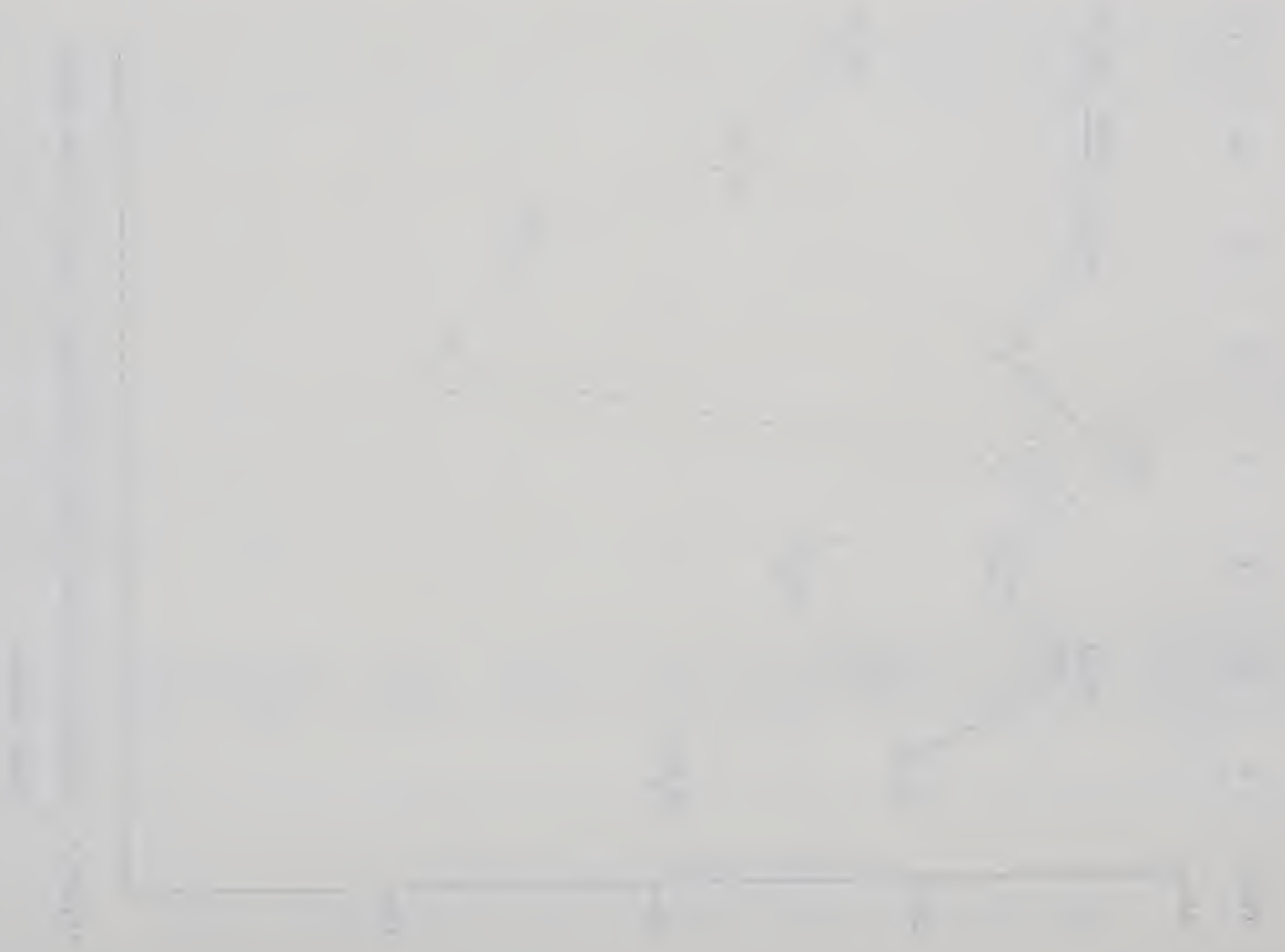


Figure 4. *Comparison of mean scores for Groups X and Y on the eight humor tests.*



In continuing the investigation of the inverse relationship present in Factor I, the distribution of Test 20 responses in the two groups was examined. The tabulation of "Don't know" responses for Groups X and Y are shown in Tables 9 and 10, respectively. A comparison of each group's mean scores on the eight parts of the humor instrument is shown in Figure 5.

It may be seen that the difference between the two groups is extremely marked. Group Y's infrequent use of the Test 20 response would seem to indicate that those students who had achieved mastery of the necessary mediating skills were able to evaluate almost all the jokes in the instrument. Likert scores may have been low for some jokes, signifying Group Y's view that the jokes were childish, but nevertheless these students were able to recognize the humorous intent of the items.

Group X used the Don't Know response more frequently than the other subgroup, the difference in frequency being most apparent in Figure 5. The frequency with which Group X used this response increased considerably for the second part of the humor instrument. Inspection of this increase shows it to be most marked on Tests 8 and 9, those requiring the subjects to read humorous poetry. It would seem that the task of mediating the message was burdensome for the members of Group X. This caused them to see the material less as a collection of jokes and more in the light of a series of onerous comprehension tasks. Consequently, because of their preoccupation with the mediational complexities of the jokes, these subjects were unable to discern the humor. In Tests 8 and 9 these difficulties were probably compounded by the jokes being in metrical form, and a high number of Test 20 responses for Group X was the result.

Table 9. Distribution of "Don't know" responses for 10% of sample with highest number of "Don't know" responses (Group X).

Test No.	4	5	6	7	8	9	10	11	20
Description	Oral Tend.	Oral Non-tend.	Cartoons Tend.	Cartoons Non-tend.	Poetry Tend.	Poetry Non-tend.	Prose Tend.	Prose Non-tend.	Total "Don't know" Responses
Subject									
Gr. 4 girl School A	4	4	7	5	10	10	10	10	60
Gr. 6 boy School B	3	1	3	0	6	7	4	3	27
Gr. 6 boy School B	4	1	2	1	7	8	3	2	29
Gr. 4 boy School B	4	0	0	0	4	5	3	3	18
Gr. 4 boy School A	3	1	3	2	3	4	1	0	17
Gr. 4 girl School A	2	1	1	1	3	3	3	2	16
Totals	20	8	16	9	33	37	24	20	167
Mean No. of Responses	3.3	1.3	2.6	1.5	5.5	6.1	4.0	3.3	27.33

Table 10. Distribution of "Don't know" responses for 10% of sample with lowest number of "Don't know" responses (Group Y).

Test	4	5	6	7	8	9	10	11	20
Description	Oral Tend.	Oral Non-tend.	Cartoons Tend.	Cartoons Non-tend.	Poetry Tend.	Poetry Non-tend.	Prose Tend.	Prose Non-tend.	Total "Don't know" Responses
Subject									
Gr. 5 girl School A	0	0	0	0	0	0	0	0	0
Gr. 6 girl School A	0	0	0	0	0	0	0	0	0
Gr. 4 boy School B	0	0	0	0	0	0	0	0	0
Gr. 4 girl School A	0	1	0	0	0	1	0	0	2
Gr. 6 girl School A	0	0	1	0	1	0	0	0	2
Gr. 6 boy School A	0	0	0	1	1	0	0	0	2
Totals	0	1	1	1	2	1	0	0	6
Mean No. of Responses	0	.16	.16	.16	.32	.16	0	0	1.0

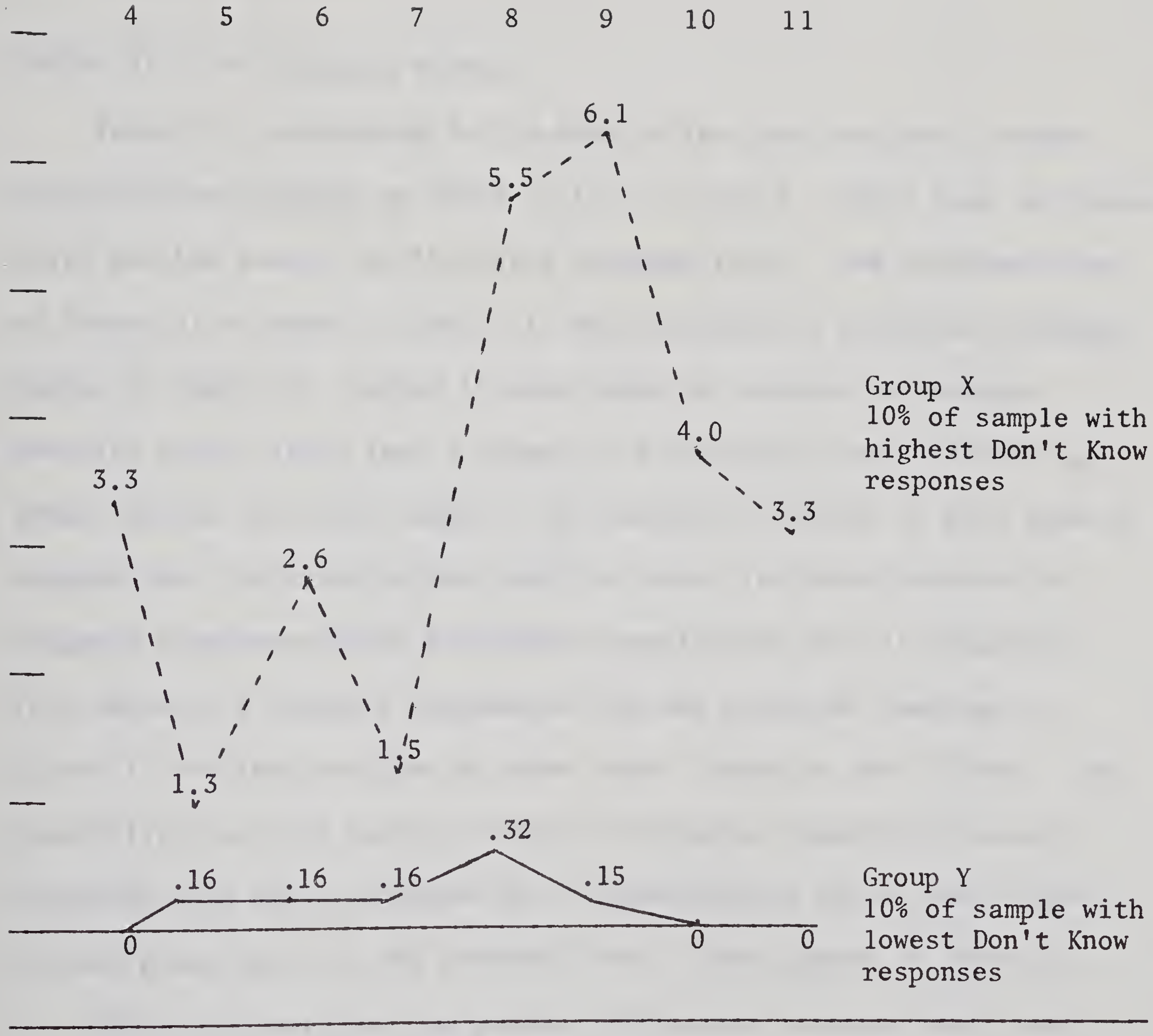


Figure 5. *Comparison of distributions of mean numbers of Don't Know responses for Groups X and Y.*

In the light of this evidence it would seem that the hypothesis that a mastery factor is operational in Factor I can be supported. The hypothesis might have been substantiated further by the appearance of loadings on the cognitive, reading, and language measures in Factor I. However, inspection of the principal loadings on the Factor shows this not to be the case, each of these groups of measures loading elsewhere in the factor matrix.

Factor II: *The Language Factor*

Factor II, accounting for 16.960% of the total variance, showed high positive loadings on Tests 3, 12, 13, and 14. These were the grade level and the scores for the three Language Tests. The interpretation of Factor II is shown in Table 11, and the Factor's principal loadings appear in Table 12. Factor II would seem to represent a language maturity factor since Test 3 served to distinguish three discrete age groups within the total sample. The loadings on Factor II also seem to suggest that the Proverbs Test used to obtain the three measures of language competence might be narrowly specific in what it measures. This would be a possible explanation for the principal loadings on Factor II and the fact that no other tests loaded on this factor. The possibility that the particular type of language competency measured increases with age is enhanced by an investigation of the mean scores of each grade level on the Proverbs Test. These appear in Table 13.

Table 13 shows that the greatest difference between grade level scores is in Test 14, in which each subject was scored on the abstractedness of the ideas expressed in his response. The fact that differences between the grade levels were less marked on Tests 12 and 13 might be

Table 11. Interpretation of Factor II.

Test	*Relevant descriptions*	*Factor Loadings*
1		0.122
2		0.233
3	Grade level	0.590
4		0.020
5		-0.118
6		-0.204
7		-0.150
8		0.165
9		0.101
10		-0.121
11		-0.135
12	Correct/Omission	0.918
13	Literal/Metaphoric	0.927
14	Abstractedness	0.934
15		0.077
16		0.157
17		0.389
18		0.188
19		0.185
20		-0.024

Table 12. Principal loadings on Factor II.

Test	*Relevant descriptions*	*Factor loading*
3	Grade level	0.590
12	Correct/Omission	0.918
13	Metaphoric/Literal	0.927
14	Abstractedness	0.934

Table 13. Mean scores per grade on the Proverbs Test.

Grade	*Test 12 Correct/Omission*	*Test 13 Metaphoric/Literal*	*Test 14 Abstractedness*
4	4.7	5.2	4.25
5	7.6	8.0	10.6
6	8.3	9.8	14.2

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significant. It raises the possibility that the proverbs used in the Proverbs Test might have been unfamiliar to the children in the sample. This would cause a distortion of the picture of the children's real language competence, depressing the scores for Tests 12 and 13 while Test 14, being less dependent on knowledge of the proverbs, reflected a gradual acquisition of language maturity more in keeping with the findings in the literature.

Factor III

Factor III revealed the loadings shown in Table 14. Of the six factors emerging from the Varimax rotation, Factor III is the one about which it is most difficult to offer any hypothesis. The difficulty is twofold, stemming from the particular tests which show principal loadings on Factor III, and from the methodological misfortune of having Test 2 represent both the school attended by a subject and the form of the instrument administered to him. Because of the duality of Test 2 it is impossible to ascertain whether the school environment or the form of the instrument interacted with the humor scores in Tests 4 through 7.

However, the principal loadings in Factor III, shown in Table 15, would seem to indicate that oral and cartoon jokes provided for the identification of a common quality which might be predominant in these forms of humor. The highest loadings on this Factor were on Tests 6 and 7, the tendentious and non-tendentious cartoons. This might indicate a tendency for preferring perceptual jokes, or humor in which violation of schematized reality and the strictures of social codes are influenced either by the school environment or the organisation, random or otherwise, of the humor instrument.

Table 14. Interpretation of Factor III[a]

Test	*Relevant test description*	*Factor loadings*
1		-0.023
2	School/Form of instrument	0.790
3		-0.036
4	Oral tendentious	0.466
5	Oral non-tendentious	0.556
6	Tendentious cartoons	0.698
7	Non-tendentious cartoons	0.742
8		-0.003
9		-0.010
10		0.342
11		0.041
12		-0.004
13		-0.042
14		0.012
15		-0.089
16		0.040
17		-0.210
18		-0.012
19		-0.052
20		-0.144

[a] Total variance accounted for 11.937%.

Table 15. Principal loadings on Factor III.

Test	*Relevant test descriptions*	*Factor loadings*
2	School and form of instrument	0.790
4	Oral tendentious jokes	0.466
5	Oral non-tendentious jokes	0.556
6	Tendentious cartoons	0.698
7	Non-tendentious jokes	0.742

Factor IV: *The Reading Factor*

Factor IV accounted for 10.049% of the total variance and loaded principally on Tests 18 and 19, the two reading scores, as shown in Table 16.

The data in Factor IV would seem to suggest that the Stanford Reading Tests, Form W, measure very specific aspects of children's abilities in interpreting word and paragraph meanings. The data may also suggest that these aspects are unrelated to the more comprehensive powers of interpretation which might be necessary for the appreciation of humor. This hypothesis would seem to be substantiated by the small loadings on Tests 8 through 11 in Factor IV. These tests were those which required the subjects to interpret printed verbal jokes. It may be that the type of interpretation required a degree of synthesis of the content of longer passages of prose and poetry, an ability not measured by the reading tests.

The supposition that the reading scores used in Tests 18 and 19 measure only limited aspects of reading ability is supported by Helen M. Robinson (Buros, 6:656). She observes:

> Unfortunately, the paragraph meaning section relies entirely on words to fit the context. Hence pupils who have had considerable experience and instruction in using context clues are likely to earn higher scores, even though they can read less well than other pupils who have had no such instruction. Furthermore, filling in the blanks definitely limits the range of comprehension abilities which can be measured. An examination of the skills required in this section reveals that in most cases filling in the blanks correctly depends on getting the facts or details and securing implied meanings. Notably lacking, especially at the upper levels, is the demand for getting main ideas . . . , drawing conclusions, determining bias and recognising the feelings of those described.

Table 16. Interpretation of Factor IV.

Test	*Relevant test descriptions*	*Factor loadings*
1		0.060
2		-0.122
3		-0.140
4		-0.177
5		-0.135
6		0.005
7		0.134
8		-0.050
9		-0.114
10		0.092
11		0.312
12		0.149
13		0.158
14		0.166
15		0.158
16		-0.003
17		0.047
18	Word meaning	0.937
19	Paragraph meaning	0.894
20		0.062

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Factor V: *The Cognitive Maturity Factor*

Factor V accounted for 9.492% of the total variance in the investigation and might be labelled a cognitive maturity factor. Principal loadings were evident on Tests 3, 15, 16, and 17, as shown in Table 17. These represent grade level and scores obtained by subjects on each of the three cognitive tasks. These loadings seem to suggest that an interrelationship exists between the students' performances in cognitive operations and their general maturity represented by grade level placement. Investigation of the mean scores for the cognitive tasks for each grade level, shown in Table 18, tends to support this hypothesis.

The interrelationship of the cognitive scores with grade level would seem to indicate that the three cognitive tests are mutually complementary in measuring a particular type of cognitive operations, the development of which accompanies the individual's general intellectual growth and does not impinge upon the type of cognition utilized in humor appreciation. The supposition that the particular type of cognitive operations measured in Tests 15, 16, and 17 may not be congruent with the thinking involved in humor appreciation would seem to be substantiated by the small loadings on the humor tests in Factor V. Furthermore, the small loadings in Factor V on the language and reading tests would seem to suggest that the cognitive measures obtained were of only marginal pertinence to the thinking necessary in language and reading.

Factor VI: *The Affective Factor*

Factor VI, represented in Table 19, accounted for 6.734% of the total variance encompassed within the rotated factor loading matrix. Within Factor VI some interrelationship between Test 1, the sex of the

Table 17. Interpretation of Factor V.

Test	*Relevant test descriptions*	*Factor loadings*
1	Sex	0.084
2	School	0.197
3	Grade	0.511
4	Humor	0.183
5		0.322
6		0.023
7		0.197
8		0.090
9		0.124
10		0.021
11		0.047
12	Language	0.098
13		0.075
14		0.162
15	Multiplicative classification	0.068
16	Matrices	0.777
17	Duality Principle	0.477
18	Reading	0.030
19	Reading	0.193
20		0.207

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Table 18. Mean scores for the three Cognitive Tests for each grade level.

Tests	15	16	17
Descriptions	Multiplicative Classification	Matrices	Duality Principle
Grade			
4	1.89	1.57	1.63
5	2.05	2.20	2.30
6	2.27	2.33	2.22

Table 19. Interpretation of Factor VI.

Test	*Relevant test descriptions*	*Factor loadings*
1	Sex	0.891
2		0.082
3		-0.155
4	Oral tendentious jokes	0.530
5		0.206
6		-0.013
7		-0.178
8		0.073
9		-0.054
10		0.173
11		-0.146
12		0.092
13		0.074
14		0.055
15		0.122
16		-0.093
17		0.258
18		0.018
19		0.018
20		-0.001

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subjects, and Test 4, the oral tendentious humor score, was evident. This may be an indication that the subjects of one sex gave higher scores to oral tendentious humor than did the other sex. Detailed investigation of the scores of each sex on Test 4 revealed that generally the girls in each grade showed a lesser degree of preference for oral tendentious jokes than the boys. The mean scores for each of the six subgroups, boys and girls at each grade level, and the total means for each sex, are shown in Table 20.

The lesser degree of preference shown by the girls for the jokes in Test 4 may have been due to a greater degree of inhibition being engendered in the girls. The jokes in Test 4 were tendentious and were played back from a tape recording to large groups which included both boys and girls. In addition, the presence of the male investigator may have added to the social inhibitions felt by subjects at the time. Had the tendentiousness of the jokes been more extreme, and included scatological humor for example, it is possible that differences in the means for this sample may have been greater, since Factor VI appears to have been measuring interrelationships in the affective domain.

The six factors which emerged from the Varimax rotation of the factor matrix provided evidence of the presence of a moderately strong factorial structure among the twenty variables used to furnish data.

Summary

Factorial analysis was selected as the most suitable technique for interpreting the data collected in this investigation. The appropriateness of this statistical method to the study lay in its facilitating an overview of the total domain encompassed by the data.

Table 20. Mean scores by sex and grade for Test 4,
Oral Tendentious Humor

Grade	*Girls*	*Boys*
4	25.6	30.11
5	26.6	34.9
6	24.0	26.5
Means for all boys and girls	25.06	30.5

A factor loading matrix using an orthogonal structure was rotated according to the Varimax procedure to obtain a clearer view of the interrelationships between the twenty variables. From the Varimax rotation there emerged six principle factors, accounting for 76.050% of the total variance. A moderately strong factorial structure seemed evident within the six factors.

The six factors were designated I through VI for the purposes of examination. Each factor was discussed and a tentative explanation offered for the interactions evident within the factor.

CHAPTER V

DISCUSSION OF THE FINDINGS OF THE STUDY

Introduction

This concluding chapter of the investigation has three main sections followed by a concluding discussion. The first of these sections is devoted to the reiteration of the questions to which this study addressed itself. Some tentative answers, based on the data used in the investigation, are put forward and discussed.

The second major part of the chapter suggests some implications of the study. The implications are of two kinds, those having significance for the art of teaching and those which should be borne in mind by future researchers into the nature of children's humor.

The second part of the chapter leads naturally to the third section, which contains some suggestions for future research in this field of children's humor preferences.

The Five Questions Asked

The survey of the literature relating to children's humor preferences led to the formulation of five questions for investigation in this study. The results of the data analysis now permit tentative answers to those questions to be offered.

Question 1: *Are relationships evident between the measures of cognitive ability, language maturity, or reading competence, and humor preferences scores?*

The results of the factor analysis of the data compiled during

this study seem to deny any relationship between competency scores in the areas of cognition, language or reading, and humor preferences as measured in the investigation. The failure of the empirical evidence to support the possibility of a relationship existing may have been due to the narrow specificity of the tests used to measure cognitive, language and reading competencies. Such a postulation might explain the three groups of tests loading on separate Factors, as shown in Table 21.

Question 2: *Are differences in humor preferences discernible between children at one level of cognitive operations and those attaining a different level?*

The output from the Varimax factor loading matrix shows that the humor scores tended to cluster into two broad categories one of which might be labelled "perceptual jokes" and the other "conceptual jokes." The loadings for each category were on Factors III and I, respectively, as shown in Table 22. Unfortunately, the data derived from the cognitive tasks seemed to provide measures unrelated to that type of cognition operational in humor appreciation. Consequently, no empirical evidence was suggested by the rotated matrix to support the possible relationship of either category of humor to the cognitive functioning of the children in the sample.

Question 3: *Does humor appreciation reflect the enjoyment of a feeling of mastery over the content of a joke?*

The results of the data analysis seem to lend some support to the hypothesis that a feeling of mastery over the content and form of a joke

Table 21. Discrete factor loadings of the cognitive, language and reading scores.

	Factor					
Test	I	II[a]	III	IV[b]	V[c]	VI
12		0.918				
13		0.927				
14		0.934				
15					0.680	
16					0.777	
17					0.447	
18				0.937		
19				0.894		

a: Language scores loadings

b: Reading scores loadings

c: Cognitive scores loadings

Table 22. Loadings on Factors I and III showing clustering of humor scores into two broad categories

Test		*Factor* I	*Factor* III
5	Non-tendentious oral		0.556
6	Tendentious cartoons		0.698
7	Non-tendentious cartoons		0.742
8	Tendentious poetry	0.870	
9	Non-tendentious poetry	0.878	
10	Tendentious prose	0.740	
11	Non-tendentious prose	0.717	

Factor I: "Perceptual jokes"

Factor III: "Conceptual jokes"

is reflected in an appreciative response. Factor I provided some empirical evidence of a mastery aspect to humor appreciation. This Factor, which accounted for a greater amount of total variance in the data than any of the other Factors, provided empirical evidence of the existence of an inverse relationship between Tests 8 through 11 and Test 20. The first group of tests provided scores which were measures of the appreciation of humor requiring the use of reading, language and cognitive skills in a more sustained manner than in the rest of the humor instrument. Test 20 was derived from the total number of Don't Know responses throughout the whole instrument. The inverse relationship depicted in Factor I would seem to indicate that those subjects who showed a high degree of appreciation for jokes requiring more sophisticated verbal mediation used the "Don't know" response category to a minimal degree.

Question 4: *Does the sex of the child influence his or her degree of humor preference?*

The principal loadings on Factor VI would seem to suggest that the sex of the subject may well have acted as a variable in one part of the humor instrument. That particular portion of the instrument consisted of oral tendentious jokes; and investigation of the scores of boys and girls showed lower preference scores from the latter for this type of humor. Similar differences between the males' and females' scores were not evident on the other tendentious portions of the humor instrument. It seems possible that the girls recorded lower preferences for oral tendentious humor because they felt more constrained than the boys by the fact that the jokes were received in a social setting. It

is also possible that this sense of constraint was increased by the presence of the male investigator during the oral tendentious portion of the humor instrument.

Question 5: *Do older children express a greater preference for anti-authoritarian tendentious humor than younger children?*

Britton (1970) has suggested that increasing identification with peer group sub-cultures may lead to a growing appreciation of that type of joke which features the demise of adults. It would seem that the evidence to support such a hypothesis might best be found in the interrelationship of the grade level data and the tendentious humor scores in this study. However, examination of the matrix provided no evidence which might support Britton's theory as it related to the sample tested and the tests administered in this study.

Implications of the Study

The implications of this study are of two kinds, namely those for teachers in the classroom and those for future researchers in the area of children's humor.

The implications for classroom teachers are three in number. Two of these seem to be of major significance to classroom teaching and relate to children's abilities to mediate symbolic messages. Firstly, such mediation seems to depend upon a generalized ability to master the message. Factor I, which accounted for the largest amount of total variance in the data, appeared to indicate that control over the graphemic, linguistic and cognitive aspects of the jokes was inversely related to the tendency to fail to recognize the messages as humorous.

Secondly, the mediation of symbolic forms used in the jokes tended to be of two different types, namely perceptual and conceptual. A dichotomous relationship seems evident between humor requiring perceptually dependent mediation and that which necessitated a more abstract conceptual level of mediation. This appears to indicate that the children used as subjects for this investigation were, as a group, able to use both means of processing messages.

The child's need for mastery as a prerequisite for enjoyment, and the possibility that children might use different mediating processes in interpreting a message, should be considered by the classroom teacher who is planning materials or presenting them to children in this age group.

A third implication of this study for the classroom teacher is that the affective facet of personality exerts a strong influence on behaviour in group activities. This seems to be indicated by the depression of the girls' humor scores on Test 4. The involvement of attitudes and feelings in a group situation should suggest that the teacher should be aware of that involvement when planning student activities entailing group participation. Such awareness would seem to be particularly necessary if, as in this study, the class includes children who are of the opposite sex to that of the teacher.

Four implications specifically related to the investigation of children's humor preferences seem evident from the results of this study. The first of these appears to be that the Proverbs Test used seems to be somewhat limited in its ability to measure children's language competence as it relates to their appreciation of humor. Only the score derived from the abstractedness of the children's responses

seemed to reflect the differences in language maturity described in the literature.

Secondly, the loadings of the humor tests on two separate factors suggested that humor may be of two basic types, being either perceptually or conceptually dependent.

A further implication relating specifically to the future study of children's humor pertains to the nature of the cognitive measures used. In this study, those tests used seemed to measure an aspect of cognitive operations not influential in humor appreciation.

The nature of the sample used for this investigation and the results of the data analysis were such that clear differences between age groups did not emerge. This would seem to suggest that the broad scope of the study and the involvement of a number of variables in the humor response tended to impede the obtaining of a clear picture of more radical differences between groups of children in three consecutive grade levels. Since little can be done to reduce the breadth of the topic or the influence of the many variables, differences might become more evident with more disparate grade levels.

Finally, the tentative identification of the existence of a mastery factor and of different types of humor should provide an incentive for further research. Such subsequent investigation may present a new and enlightening perspective on child development, one which would provide greater insight into the cognitive and affective behaviours of the pre-adolescent.

Suggestions for Further Research

The results of this investigation would seem to suggest that the

subject of children's humor appreciation is a fertile field of further study, providing perspectives on various aspects of child development.

Three main avenues of further exploration appear evident. Principal among these is further research to identify tests which more clearly focus on the cognitive language and reading skills utilized in the appreciation of humor.

McGhee's (1971b, 1972 and 1973) investigation of the cognitive variable in humor utilized conservation tasks to support the hypothesis that differences in mental operations influence humor preferences. Further research into the cognitive aspect of humor appreciation would seem to necessitate the identification of cognitive tasks which would illustrate the influence of different levels of operations on humor in general. Such tasks would need to avoid specificity, either in terms of being related to conservation jokes in particular, or by being measures of a type of cognitive functioning minimally related to humor. The tasks identified would also need to represent more than a stating of obvious cognitive differences between sub-groups, yielding instead results depicting ways of thinking rather than cognitive maturity.

Isolating the language variable pertinent to the appreciation of humor also seems a need which could be fulfilled by further research. The scores yielded by the Proverbs Test used in this study suggest that the seven proverbs used may have been unfamiliar to the subjects. The foreign nature of the proverbs to the children is a possible explanation for the distortion of the language scores used as data. The strangeness of the proverbs prevented their being recognised as metaphorical sayings, for to be recognised as such they would first have to be in widespread everyday use in the language community of the children. By hearing a

proverb frequently applied to different people and situations the child would then be able to move from a specific understanding, through the stage of general interpretation to the application of the proverb to characteristics which he wishes to communicate to others. However, if the child is not acquainted with the proverb this development of an understanding of its metaphorical significance is denied him and it is interpreted as a statement.

It may be significant to this hypothesis to observe that the proverbs used by Piaget (1955) are quite different from the ones used in this investigation, the former being probably of French or Swiss origin (Appendix C).

If the proverb scores were distorted, and if this was for the reasons suggested, then this does not necessarily mean that the cultural milieu of the subjects suffers a paucity of proverbs or metaphorical aphorisms. What it does suggest is that future research might explore the language culture of these or similar subjects in order to discover and describe proverbs indigenous to their language community.

Any investigation of children's humor subsequent to this study might well address itself to the utilization of subjects from a wider age range. Although the subjects for this study were selected in order to form three discrete age groups, these groups were all close to each other chronologically and developmentally. A picture of the shift towards the more abstract thinking believed to occur in the upper elementary grades did not emerge with any clarity. Future research, utilizing chronologically and developmentally more disparate groups of subjects may well provide a clearer indication of differences between levels of thinking.

The significance of the part played in humor by the affective aspect of personality might also provide an avenue for further investigation. Pronounced differences in the tendentious scores for jokes received in public and those received in private would seem to indicate that the inhibitory effects of social codes are an influence in humor appreciation worthy of further study.

Concluding Discussion

This investigation resulted in no definitive indications of the influence of the stated variables on children's humor preferences in grades 4, 5 and 6. However, as with any study intended to discover the nature of the field, it revealed the possible existence of some interrelationships between the variables. Notable interrelationships were those which contributed to a mastery factor, Factor I, and the affective factor, Factor VI. Analysis of the data also appeared to indicate that the cognitive, language and reading tests were too narrowly specific to encompass the processes contributing to Factor I.

The investigation has helped discover the breadth of mental operations involved in humor and hopefully has illumined some avenues along which future research on the topic might proceed.

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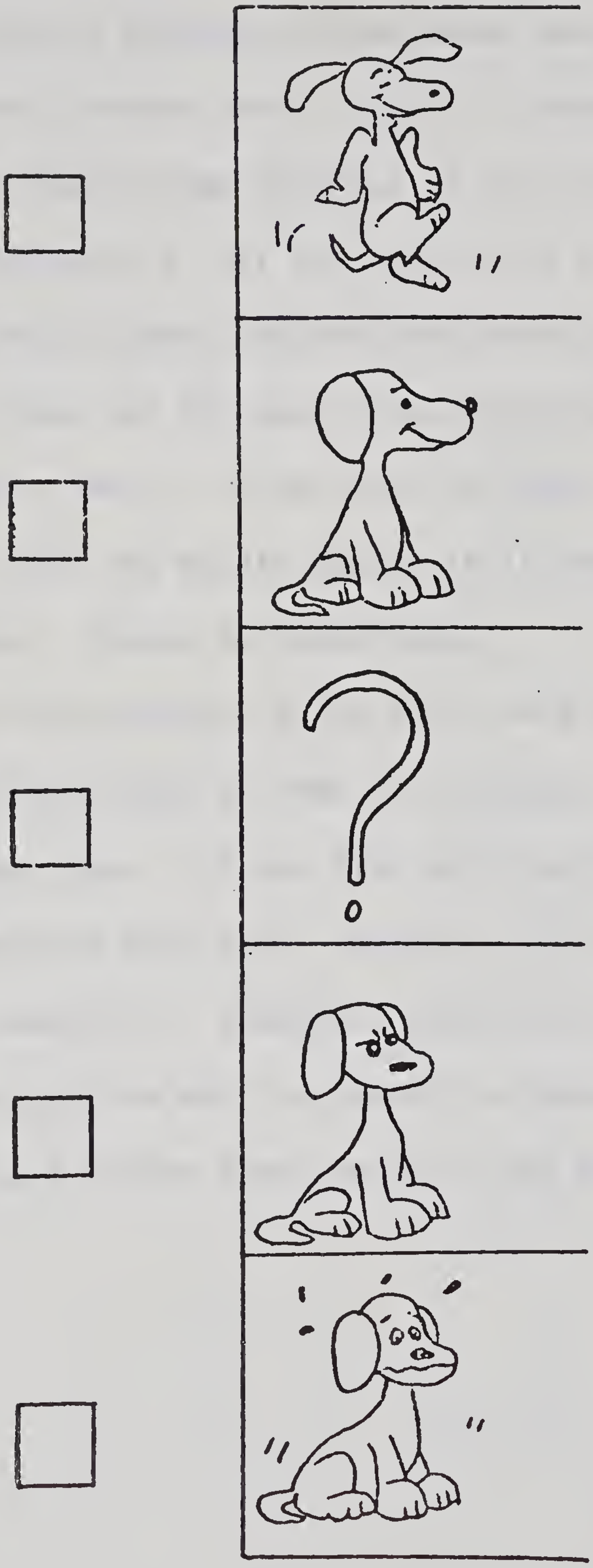
APPENDIX A

THE HUMOR INSTRUMENT



Likert scale format used in the pilot study.

[illegible]

Initial instructions given for the humor instrument.

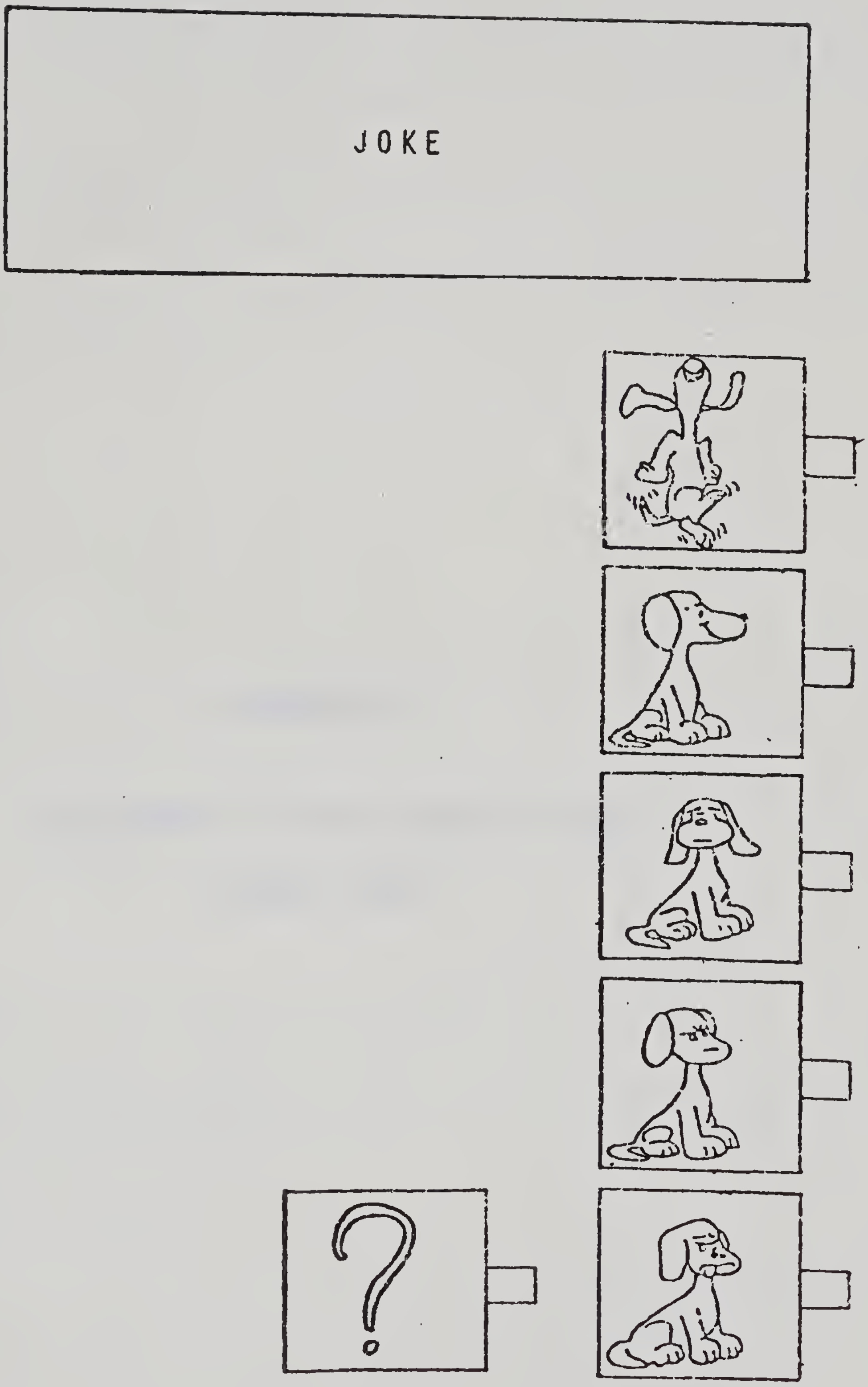
I want you to look at these booklets which are part of a collection of jokes. Different people have different ideas about what is funny; some people laugh at one joke, others don't think it's funny at all.

I want you to tell me which items overhead in these booklets are funny jokes. [Switch on projector.] All you have to do is put a check mark by the Snoopy picture which shows how you feel about the joke. If the joke seems very funny check the top space here [point on projected image], if not quite so funny, here. If the joke is funny, but not enough to make you laugh, check the middle space; if it seems a stupid joke check the bottom square. [Pause for questions.]

There may be items in the booklets which don't seem like jokes at all. Perhaps after you have heard or read it, you don't know why it's even with all the other jokes. If you find anything like that, put a check mark by the question mark here, instead of by a Snoopy.

[Begin distributing booklets.] Remember, this isn't supposed to be a test. I just want to discover what you think is funny.

Put your name and school on the front cover of the booklet.



Likert scale format used for transparency and booklets in the main study.

[illegible]

APPENDIX B

PROCEDURES FOR THE COGNITIVE TASKS

(Whyte 1969)

I. CLASSIFICATION:

1. MULTIPLICATIVE CLASSIFICATION

Material: Sixteen shapes (2"): 4 blue squares and 4 red squares; 4 blue circles and 4 red circles; two boxes, 10 by 6 1/2 by 2 inches deep; one box 9 by 12 by 2 inches deep, sub-divided into four equal sections by movable partitions.

Testing procedure: The 16 shapes will be presented in disorder with the instructions:

A. "PUT TOGETHER THOSE THAT ARE ALIKE, THOSE THAT GO TOGETHER."

Describe the sorting: ____________________

____

____

B. Present the two boxes. Say,

"PUT SOME IN THIS BOX AND SOME IN THIS BOX." [indicate]

Describe group in box 1: ____________________

Describe group in box 2: ____________________

Is the sorting exhaustive? Yes ____ No ____ Describe remainder

____

C. Present the box with the 4 partitions. Say,

"PUT TOGETHER THOSE THAT ARE ALIKE AND PUT THEM IN DIFFERENT PARTS OF THIS BOX."

Describe grouping:

Is the sorting exhaustive? Yes ____ No ____ Describe remainder

____

D. Take out one of the partitions in the box used in (3) so that the blue squares will be in one half and the red squares will be in the other. Say,

"CAN YOU PUT THESE [indicate blue squares] WITH THESE [indicate red squares]?"

Yes ____ No ____

"WHY?" (if answer is yes) ________________________________

"WHY NOT?" (if answer is no) ________________________________

"CAN YOU PUT THESE [indicate blue circles] WITH THESE [indicate red circles]?"

Yes ____ No ____

"WHY?" (if answer is yes) ________________________________

"WHY NOT?" (if answer is no) ________________________________

E. Replace the first partition and remove the second so that the shapes are sub-divided into blue squares in one half and blue circles in the other half. Say,

"CAN YOU PUT THESE [indicate blue squares] WITH THESE [indicate blue circles]?"

Yes ____ No ____

"WHY?" (if answer is yes) ________________________________

"WHY NOT?" (if answer is no) ________________________________

"CAN YOU PUT THESE [indicate red squares] WITH THESE [indicate red circles]?"

Yes ____ No ____

"WHY?" (if answer is yes) ________________________________

"WHY NOT?" (if answer is no) ________________________________

In (4) the subjects classed by shape and in (5) by color. The questions are to determine whether the child realizes that sub-classes which have been separated can be reunited.

Note re recording: BC = blue circles; BS = blue squares
RC = red circles; RS = red squares

MULTIPLICATION OF CLASSES

The Matrices Test

Materials: 9 items (1 practice): 9 cards, 4" square, each containing pictures of 3 items presented in matrix order; for each item a number of distractors are provided.

Testing Procedure: Present the 9 cards, one at a time. The appropriate distractors are also presented along with each item. The Subject is instructed to try each of the distractors in the empty cell. The order of presentation for each item and for the distractors is standard. S is asked 3 questions for each item.

Item 7 - three attributes: color, shape and orientation

A. "CAN YOU FIND THE CORRECT PICTURE, THE ONE THAT GOES HERE?"

Record selection ____________________

B. "WHY IS THIS THE CORRECT ONE?"

Record answer ____________________

C. "COULD YOU PUT ANYTHING ELSE THERE?"

If yes, record selection ____________________

"WHY?" ____________________

If no, ask "WHY NOT?" ____________________

Item 8 - three attributes: color, shape and size

A. "CAN YOU FIND THE CORRECT PICTURE, THE ONE THAT GOES HERE?"

Record selection ____________________

B. "WHY IS THIS THE CORRECT ONE?"

Record answer ____________________

C. "COULD YOU PUT ANYTHING ELSE THERE?"

Record answer ____________________

If yes, record selection ____________________

If no, ask "WHY NOT?" ____________________

Test for the Duality Principle[1]

Material: Pictures, 2 by 2 inches: 5 different animals (cow, horse, pig, lamb, dog), 4 birds not ducks, 3 ducks.

Testing procedure:

(1) Spontaneous classification: Present the Subject with the material and say,

"HERE ARE SOME PICTURES. YOU SEE, HERE WE HAVE A ______ AND HERE IS A ______." [Let the child supply the names.] "CAN YOU MAKE SOME GROUPS WITH ANIMALS THAT ARE LIKE EACH OTHER? FIND THE ANIMALS THAT ARE THE SAME KIND TWO OR MORE TIMES AND PUT THEM TOGETHER."

Describe the classification ______________________________

____

Say, "DIVIDE THE PICTURES INTO BIRDS AND OTHER ANIMALS."

Birds ______________________________

Other Animals ______________________________

Say, "DIVIDE THESE [indicate] INTO DUCKS AND OTHER BIRDS."

Ducks ______________________________

Other birds ______________________________

(2) General questions on inclusion:

"ARE THERE MORE BIRDS OR MORE ANIMALS?" More birds ___ More animals ___

"WHY ARE THERE MORE (_____)?" ______________________________

If S answers that "It is the same," ask, "BUT IF ONE COUNTS ALL THE BIRDS AND THEN COUNTS ALL THE ANIMALS, WHERE WILL THERE BE MORE?"

More birds _____ More animals _____ "WHY?" ______________________

"ARE THERE MORE DUCKS OR MORE BIRDS?" More ducks ___ More birds ___

"WHY ARE THERE MORE (_____)?" ______________________________

If S answers that "It is the same," ask, "BUT IF ONE COUNTS ALL THE DUCKS AND THEN COUNTS ALL THE BIRDS, WHERE WILL THERE BE MORE?"

More ducks _____ More birds _____ "WHY?" ______________________

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[1] Inhelder and Piaget, The Early Growth of Logic in the Child: Classification and Seriation, p. 143.

(3) Questions on the duality principle:

"SHOW ME ALL THE THINGS WHICH ARE NOT DUCKS, AND ALL THOSE WHICH ARE NOT BIRDS."

Not ducks__________________ Not birds____________________

"SHOW ME ALL THE THINGS WHICH ARE NOT BIRDS AND ALL THOSE WHICH ARE NOT ANIMALS."

Not birds _________________ Not animals _________________

"ARE THERE MORE LIVING THINGS WHICH ARE NOT DUCKS OR MORE LIVING THINGS WHICH ARE NOT BIRDS?"

More which are not ducks _____ More which are not birds _____

"WHY ARE THERE MORE WHICH ARE NOT (_____)?"

"ARE THERE MORE LIVING THINGS WHICH ARE NOT BIRDS OR MORE LIVING THINGS WHICH ARE NOT ANIMALS?"

More which are not birds _____ More which are not animals _____

"WHY ARE THERE MORE WHICH ARE NOT (_____)?" __________________

(4) If S has difficulty with form (3) questions, ask the following questions involving subtraction:

"IF ALL THE DUCKS IN THE WORLD WERE KILLED, WOULD THERE BE ANY BIRDS LEFT?"

Yes _____ No _____ "WHY?" ___________________________________

"IF ALL THE BIRDS IN THE WORLD WERE KILLED, WOULD THERE BE ANY DUCKS LEFT?"

Yes _____ No _____ "WHY?" ___________________________________

"IF ALL THE ANIMALS IN THE WORLD WERE KILLED, WOULD THERE BE ANY BIRDS LEFT?"

Yes _____ No _____ "WHY?" ___________________________________

"IF ALL THE BIRDS IN THE WORLD WERE KILLED, WOULD THERE BE ANY ANIMALS LEFT?"

Yes _____ No _____ "WHY?" ___________________________________

Comment on testing:
Understood the directions_____________
Prompting needed _____________________
Doubtful if ever understood __________
Other________________________________

APPENDIX C

PROVERBS USED BY PIAGET (1970)

So often goes the jug to water, that in the end it breaks.

White dust will ne'er come out of a sack of coal.

Filing can turn a stake into a needle.

Drunken once will get drunk again.

By wielding his hammer a blacksmith learns his trade.

The flies buzzing round the horses do not help the coach.

To every bird his own nest is beautiful.

EXAMPLES OF PROVERBS USED BY PIAGET IN THE EXPLORATION OF CHILDREN''S VERBAL UNDERSTANDING. (From Piaget, J. _The Language and Thought of the Child_. New York: World Publishing Co. 1955).